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FINAL REPORT

INTERDEPARTMENTAL QUARANTINE COMMISSION

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Medical Director, United States
Public Health Service
T. B. Magath, Member
Captain, MC-V(S) United States Naval
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Lieutenant Colonel, MC Army of the
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10 June 1944

APR 23 1956

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FINAL REPORT

INTERNATIONAL COMMISSION ON THE HISTORY OF MEDICINE

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INTRODUCTION

For centuries, the practice of quarantine* has had an important effect on man, agriculture, and commerce. Quarantine officials have been granted power to direct and, if need be, to stop international traffic. At times such drastic action has been required, but fortunately, it has rarely been necessary in recent years. In countries like the United States, the need for it has not existed for a long time because of the protection modern sanitary progress and hygiene affords.

Although the trend in quarantine practice has been toward less stringency, the increase in travel by air and the mass movements of people due to war and economic readjustment, require re-examination of quarantine practice so that maximal freedom of commerce compatible with adequate protection may be assured.

A published code of quarantine regulations should record the adjustment between these somewhat opposed ideals in the light of scientific knowledge, and as conditions influencing quarantine are not everywhere identical, practice in different parts of the world must differ in details. Past differences have been partly resolved in the several international conferences on aerial and marine quarantine.

In the United States, national policy in regard to quarantine was stated in the basic law of 1893 and further amplified in the codes of quarantine regulations of 1920, 1937 and 1944. These have been administered by the United States Public Health Service, through the Division of Foreign Quarantine. Other phases of quarantine, such as those related to agricultural problems have been covered by other laws and regulations.

In recent years it had become evident that some quarantine procedures might be revised in view of advances in sanitation and preventive medicine. Interest in such revision was stimulated by the problems encountered in the tremendous volume and necessary secrecy of war traffic, and by the entry of airplanes in areas where quarantine facilities were not previously maintained. The situation was presented to the Surgeon General of the United States Public Health Service in a memorandum, 26 March, 1943. (App. Item 1).

*Dr. Robert Olesen, Chief Quarantine Officer at Rosebank, New York, properly raised an objection to the use of the word "quarantine" in connection with present health and sanitary supervision of traffic and pointed out that the word was no longer applicable to nor descriptive of present practice. With this the Commission agrees. A number of terms may be suggested including his own, "ship health supervision" and "ship health supervisors". Others which might be considered are: health supervision of traffic, health supervisor of traffic, ship hygiene supervision, airplane hygiene supervisor, health control of traffic, supervisor of health control of traffic, port health service, port health officer, traffic hygienist and traffic hygiene. The use of the word "quarantine" throughout the report is made therefore not as a matter of approval, but because no other has been generally accepted.

FORMATION OF THE INTERDEPARTMENTAL QUARANTINE COMMISSION

The Surgeon General of the United States Public Health Service arranged for discussion of the matter with the Surgeons General of the United States Army and of the United States Navy. In a meeting on 12 April 1943 the need for a broad study of the subject, and for a coordination of the quarantine work of the three services was outlined, with particular reference to air-travel and the movements of military personnel. It was agreed that a study should be made, and plans were developed for the establishment of an Interdepartmental Quarantine Commission consisting of a medical representative from each of the services.

Letters of 23 April 1943 from the Administrator of the Federal Security Agency formally proposed to the Secretary of War and to the Secretary of Navy that this Commission be formed, requesting representatives be appointed if the secretaries were in agreement (App. Item 2).

The Secretary of Navy by letter of 15 May 1943, (App. Items 3 and 4), appointed Captain Thomas B. Magath, MC-V(S), U.S.N.R., as representative. The Secretary of War on 11 May 1943 (App. Item 5) appointed Lieutenant Colonel Karl R. Lundeborg, MC, U. S. Army, War Department representative, but in a letter of July 28, 1943, the Acting Secretary of War appointed Major Phillip T. Knies, MC, U. S. Army, to replace Lieutenant Colonel Lundeborg due to the pressure of duties of the latter in the office of the Surgeon General (App. Items 6 and 7). The Administrator of the Federal Security Agency on 2 August 1943 appointed Assistant Surgeon General Gilbert L. Dunnahoo, U. S. Public Health Service (App. Item 8).

A letter from the Acting Administrator of the Federal Security Agency was sent to the Secretary of Agriculture on 25 May 1943 (App. Item 9), enclosing a copy of the terms of reference of the Commission, and suggesting that a representative be appointed if he so desired. The Assistant Secretary of Agriculture on 8 June 1943 (App. Item 10), indicated that the study as outlined appeared confined to public health quarantine, but stated that specialists of the Department would cooperate with the Commission upon request.

PROCEDURE FOLLOWED BY THE COMMISSION

In its investigations, the Commission first examined the current laws and regulations of the United States, and consulted officials whose work had familiarized them with the subject. Certain governmental agencies were requested to appoint consultants to the Commission, and several shipping companies and airways operating foreign services, were asked for comments and recommendations. Various military personnel were consulted with particular reference to current regulations and projected travel routes, and the Commission visited quarantine stations and aerodromes in the United States to observe methods in use, and for discussions with experienced quarantine officers.

The Commission then traveled together for about one month in the Caribbean area making preliminary observations, and formulating a method of investigation to be continued by the members separately in other parts of the world. It had become apparent that unless the members of the Commission traveled independently, the necessary studies could not be made.

The members, separately and together, observed quarantine problems and procedures at both civilian and military ports and aerodromes, examined local laws and regulations, consulted quarantine officials and Ministers of Health, visited laboratories and hospitals of tropical and exotic disease, and consulted with well known epidemiologists. The itineraries of the members of the Commission will be found in the Appendix (Item 11).

During the course of these studies a critical situation developed relative to air traffic between West Africa and Brazil. Fear developed over the possibility of transplantation* of *Anopheles gambiae* by the frequent flights between these two areas. The Commission made a thorough investigation of the problem and in its second interim report outlined the hazards and recommended certain preventive procedures to be put into effect in order to satisfy the various requirements. These measures have produced the desired results and while they are not specifically reviewed in this report, they are embraced in the general discussion of administration of quarantine and disinsectization of aircraft.

It is gratifying to note that although the Commission did not have knowledge of the conclusions reached by the quarantine committee of the United Nations Relief and Rehabilitation Administration, or of the similar committee of the National Directors of Health of the Fifth Pan-American Conference, until after it had completed the draft of its final report, the general conclusions of the three groups are practically identical. Most of the details of administration and procedures suggested are entirely compatible with each other.

GENERAL OBSERVATIONS

No investigation of this subject, particularly during war, would find matters static, for details of practice must necessarily be changed often. Some procedures noted by the Commission have already been modified or replaced, and no action therefore should be taken on the basis of this report with respect to any specific item unless its status is reexamined. In almost all areas visited there were revisions of practice either under way or contemplated in order to catch up with modern conceptions of quarantine.

Cuba was modernizing a marine quarantine code which, along with that of the Dominican Republic, had been fundamentally unchanged since 1902. Costa Rica was recodifying quarantine regulations, and Colombia was surveying its problem with the help of an officer of the U.S. Public Health Service. Argentina, Chile, and Venezuela were considering revision, and Brazil had recently strengthened quarantine by Decree Law No. 5181 in January, 1943. The British West Indies, after preliminary conferences at Barbadoes in 1942, proposed a modernized quarantine code in November, 1943,

*As used in this report, Transportation refers to the carrying of insects and pests in a conveyance without reference as to whether they arrive at a destination in a viable condition or dead and without reference to whether they establish a new generation there. Transplantation, refers to the arrival, in viable condition, of insects or pests, at a destination, but without the production of a new generation. Implantation refers to the fact that a new species has been transported, transplanted and has produced a new generation at a destination.

and in Egypt, Anglo-Egyptian Sudan and India reviews of the problems of aerial quarantine were found in progress. During this time, studies of the European aspects of the problem were also undertaken by the United Nations Relief and Rehabilitation Administration.

The Commission encountered encouragement and enthusiastic assistance in its studies throughout its travel, and noted with satisfaction the unanimous opinion of Ministers of Health that international conferences, particularly after the war, would be necessary and welcome to establish uniformity and effectiveness of international sanitation, particularly in regard to air travel. It is not premature for the United States to review the subject of quarantine.

Many existing provisions of quarantine are not discussed in this report in as much as they appear competent to accomplish their purpose.

Details of quarantine practice were found to vary widely in different countries, and even in ports of the same country. In the United States quarantine emphasis was found to be placed on yellow fever in aerial traffic and on plague in marine; in Brazil, the chief interest was to prevent reintroduction of *Anopheles gambiae*; the Philippine Islands had been principally concerned with cholera before invasion; Australia with smallpox; and Egypt, Aden and India with yellow fever. Such variations, of course, reflected to a considerable degree the dangers pertinent to the several areas.

Travelers from British Honduras were vaccinated at the Mexican border, although in Mexico City and Merida no attention was paid to immunizations. On the Gold Coast at Takoradi, the quarantine officer devoted at least ten minutes to a careful physical examination of each incoming passenger, while at Accra, passengers were seen by a physician only if obviously ill. On a Puerto Rican Army airfield, the oral temperature was taken of all passengers from the South; at the commercial airfield, only of passengers not immunized against yellow fever; and at the Naval Air Station, of no passengers at all.

Particularly divergent was emphasis on immunization. In the United States, a traveler is ordinarily excused from further quarantine if acceptably immunized, while in Australia immunization procedures were not considered to eliminate the need for surveillance or even observation under detention.

The United States has placed great emphasis on rat-proof vessels, and upon professional inspection to determine the need for fumigation; Australia and several other countries were not convinced of the reliability of either procedure. Steam and formaldehyde were used for fumigation in New Zealand, and sulphur in Australia, Lebanon, and India, while the United States considered hydrogen cyanide unsurpassed.

Many variations in practice might be equally effective, but some quarantine procedures observed could not have been expected to exclude or detect disease. At the Air Transport Command station at Belem, the temperature of a passenger was taken only if he reported himself ill, and at the hydroplane station though everyone's temperature was taken, it was by axillary technic. On a certain island, all vessels of the United Nations and airplanes of the Pan American Airways were exempted from quarantine; other carriers were carefully examined. In one country, a guard was kept on the road from the seaport to the capitol on weekdays during an epidemic of smallpox, but was absent on Sundays and holidays. These random examples could be multiplied almost indefinitely.

Need for quarantine.

It is the rarity with which cases of quarantinable disease have apparently been carried past imperfect quarantine barriers in recent years that suggests the re-evaluation of actual quarantine requirements, particularly in well-sanitated countries. On the other hand, the historical facts of transmission of quarantinable diseases along trade routes cannot be discredited. The spread of plague and of typhus along the caravan and shipping routes of Asia and Europe are matters of record; filariasis in South Carolina was introduced by slaves from Africa, and the tapeworm, Diphyllbothrium latum, owes its presence in the north-central states to immigration from Finland.

Malaria has been carried into previously non-malarious areas of this country, of the British Isles, and of Australia, by troops returning from other wars. Repetition of these misfortunes in the present conflict has been anticipated by many speakers and writers, and their apprehension has been expressed in terms which at times have been sensational and fanciful.

Alarm has been voiced, too, over the possible implantation of insect vectors of disease, or of agricultural pests into new areas. That such implantations have occurred in the past by surface carriers are historical facts, including the introduction of mosquitoes and plant parasites into Hawaii, the cotton boll-weevil and Mediterranean fruit fly into the southern, and the corn-borer into the northern states. It seemed reasonable to expect additional implantations by air-traffic, and it is, therefore, the more notable that in no known instance to date has an insect species succeeded in establishing itself in a new country by this method. No case of quarantinable disease has been known to have been carried over international boundaries by airplane.*

Nevertheless, regardless of the failure of such disasters to materialize in recent years in spite of new methods of travel and imperfect quarantine practice, the conclusion seems inescapable that quarantine measures will continue to be required, even in countries with excellent sanitation, hygiene, and medical care in order to afford that degree of assurance reasonably demanded by an alert public. It is equally important, properly to evaluate the problem, and to follow a reasonable practice based on maximal efficiency. In this connection, the prophylactic value of the mere existence of a quarantine service is readily admitted.

QUARANTINE METHODS

In the past, it was not uncommon for a passenger to arrive from abroad suffering from a quarantinable disease, or within the incubation period of the disease after exposure en route. Under these conditions it was necessary to maintain at each port, facilities for the examination, detention and care of such persons. So fearful were both officials and

*Since this report was prepared, the Commission has learned of a case of smallpox being intercepted at Miami, Florida on arrival of an airplane from South America. The patient admitted he had not been previously vaccinated, although he possessed a certificate to that effect. This then becomes the first time an international traveler by air has been found to be suffering from a quarantinable disease.

the public, and so incomplete was the knowledge of the day that these quarantine stations were usually located on segregated areas of land, preferably on islands.

As knowledge has increased, and sanitation and medical care has improved, the need for such places of detention has decreased, so that the Interdepartmental Quarantine Commission found in its studies only a few facilities which had been used within recent years, while in some countries special hospital and detention spaces have never been used for quarantine purposes. In the United States, the formerly extensive detention facilities are either in use for other purposes, or are lying idle as many have done for years, since only thirteen persons have been intercepted for quarantinable disease in the past ten years. Nine of these were for smallpox, a disease by no means absent in the United States; two for typhus; and one each for bubonic plague and leprosy. It is true that international traffic was greatly depressed during this period by economic circumstances, restrictive laws, and by war, but in the preceding ten years only one hundred fifteen cases of all quarantinable diseases had been intercepted, one half of which were smallpox. Thus in both decades the number of interceptions have been inconsiderable and during the past three years, only a case of leprosy has been intercepted. (See table 1).

Nevertheless, some countries have recently built, and others are planning, new quarantine facilities, while there is generally an effort to maintain installations already existent. The economy of these moves may be questioned.

There are, of course, outstanding exceptions to the decreased importance of quarantine and the disuse of facilities, as in the religious pilgrimages of the Near and Middle East, and probably the anticipated movements of populations displaced by the war. In these instances there has been little evidence to justify lessened precaution, but these problems are peculiar to local traffic and of temporary duration.

As knowledge grew of the roles of vectors and animal reservoirs in the transmission of disease, attempts were made to exclude them from new areas. Extensive efforts were made to control rats, yet the several species have distributed themselves widely, and Sylvatic plague has extended from the West coast to include at least eleven states, and ticks, infected with Rocky Mountain Spotted Fever have been spread throughout the United States from the Bitter Root Valley. The control of insect vectors has called for delousing procedures, ship sanitation, and fumigation of conveyances. Although disease might be carried in special instances by infected vectors in modern transportation, as plague in rats, experience indicates the greater importance of the infected person. Even this risk has not seemed large in some countries.

Experience over a long period of time, and more particularly during the present war, has shown that great reliance may be placed on immunization against smallpox, yellow fever, cholera and typhus. The Commission believes sufficient evidence has been procured so that a premium in the form of freedom from quarantine restrictions may now be given international travelers who have valid immunization certificates against these diseases. With the exception of restrictions due to the rare possible exposure to pneumonic plague, travelers need no longer be quarantined if they are wise.

In countries like the United States with high sanitary and medical

Table 1

QUARANTINABLE DISEASES INTERCEPTED AT MARITIME PORTS BY THE
UNITED STATES PUBLIC HEALTH SERVICE

Year	Smallpox		Typhus		Plague		Cholera		Leprosy	
	C	T	C	T	C	T	C	T	C	T
1924	7	14	1							8
1925	6	5			1				2	2
1926	17	2							2	
1927	10	2			2					2
1928	5	1	2				7			1
1929	3									
1930	4	1								
1931	5	1								1
1932										
1933			1							
1934	1		2		1					
1935	1									
1936	1	2								
1937										
1938	1	1								
1939										
1940	1	1								
1941										
1942										
1943									1	
Total	62	25	6	0	4	0	0	7	5	14

C-continentals T-territories and possessions

standards as a defense in depth, it must be conceded that one person or even several, suffering from quarantinable disease might gain entry without the development of secondary cases, or with the quick limitation of any spread which might occur. One may practically disregard, for purposes of this discussion, the danger of anthrax or psittacosis since regulations are not concerned with persons, but with bristles and with psittacine birds respectively. Of course, as with persons suffering from other infectious diseases, such a patient, if diagnosed should be allowed to enter the country only after proper precautions have been taken.

It is frequently proposed that the five internationally quarantinable and the several additional internationally notifiable diseases should be supplemented, or perhaps reduced in number. The Commission has discussed this point at length, and contrary to earlier opinions is convinced that no change is necessary now.

Certain remarks on the several quarantinable diseases follow:

Yellow fever

It has been nearly forty years since the last known person with yellow fever arrived in the United States. The present distribution of epidemic yellow fever renders it improbable that a person in the incubation period would arrive in this country by ship or plane, and if such did occur in this or in other countries with well-organized Public Health Departments and reasonably low indices of *Aedes aegypti*, few if any secondary cases would likely occur. In less fortunately situated or in unsanitated countries, however, the introduction and spread of the disease remains a threat and quarantine must be effective.

This is not meant to imply that *Aedes* control is practiced or is effective in all cities of the United States. In Key West, Florida, an elaborate attempt to control breeding of *Aedes aegypti* has not met with the success it has in Brazil. Nevertheless the past epidemics of yellow fever have been brought under control by reduction of *Aedes aegypti*, and by the expedient of placing persons with yellow fever under screens. With the understanding of the mode of transmission of yellow fever and the facilities available in the United States for its control, it is not reasonable to expect a serious calamity in the form of a widespread epidemic of yellow fever. In a recent report published by the Rockefeller Foundation (1943) it was stated: "The reduction of *aegypti* breeding to a point where yellow fever disappears from the towns and cities worked is relatively easy, as the dramatic results of early campaigns testify."

No traveler should be permitted to pass from an endemic or epidemic yellow fever zone, into a "clean" country unless protected by immunization, or until the lapse of the incubation period of six days after last possible exposure or unless the traveler is followed by surveillance or is detained. Immunization should be evidenced by dependable certificate attesting prior infection with the disease, or vaccination at least ten days and not more than four years before entry into the "clean" area, or serological evidence within one year of post-vaccinal immunity. Owing to the nature of the vaccine, at this time the certificates should be given by organizations or persons approved internationally, or by the Public Health Service of the country to which entrance is sought. In the United States persons presumptively exposed in an endemic area, but not immune, should be released under surveillance, and if from an epidemic area, should be detained for the necessary period. The local quarantine

officer should be allowed some discretion in applying these regulations.

From time to time, the boundaries of those areas considered dangerous from the standpoint of yellow fever should be reconsidered on the basis of current knowledge, by international health agents and representatives of the country concerned. It is considered that any arbitrary period after infection before an area may be considered "clean" is impracticable and should be replaced by regular and frequent review of the status of all questionable areas. Much of the past and current difficulty in reaching rational policy in immunization of travelers transient through arbitrarily designated yellow fever areas would be automatically eliminated in this manner.

Unofficially, due regard has properly been given by the U.S. Public Health Service to the exception from endemic status of those coastal areas of South America free from clinical yellow fever, the vector, or both, such as Natal, Belem, Rio de Janiero and Recife. Many other places important in international travel could be excepted similarly by evaluation of their status. It is obvious that any effort to take advantage of anti-amaryl conditions must depend not only upon the current incidence of vector and disease, but also upon current knowledge of health conditions and continuous inspection. Where these are not available, zonal designation cannot be abandoned.

Cholera

Since cholera is spread primarily by contaminated water and poor general sanitation, there is little reason to expect epidemics in countries like the United States, even if carriers or persons with the disease were to enter. Under poor sanitary standards the threat always remains, but in the light of experience with vaccine in pilgrimage traffic and among military forces in China and India, valid vaccination certificates should relieve the traveler of all quarantine procedure. Immunization should be accomplished within six months before entering a "clean" country from one reporting epidemic cholera. The vaccination of individuals in areas of endemic cholera, not of epidemic proportion, is a matter of individual preventive medicine rather than of quarantine importance.

Typhus fever

The typhus group of diseases is endemic over such a wide area of the earth that in many countries quarantine against them appears futile. In the United States where murine typhus, tick-fever (typhus) and Rocky Mountain Spotted Fever of both eastern and western types are endemic, rickettsioses have certainly been spread more extensively by domestic commerce than by importation, and hence the value of restraint of international travel would appear limited, the more so since in the absence of generalized lousiness, exanthematous (European, epidemic, louse-borne) typhus could not be expected to achieve important incidence here. Persons demonstrably lousy upon arriving in this country should, of course, be deloused as at present.

As a general quarantine policy, a valid vaccination certificate should relieve a passenger from all quarantine procedure except for delousing, but as with cholera, should not be insisted upon unless the traveler arrives within the incubation period from areas in which the disease is present in epidemic degree. Vaccination in non-epidemic areas is again individual prophylactic medicine.

Smallpox

One requisite of all international travel should be a valid certificate of immunity against smallpox. This is considered reasonable, and is already required by some countries as the only practicable measure in view of the wide distribution of the disease. If generally required, no further consideration of smallpox from a quarantine viewpoint would be necessary. In the absence of exposure to epidemic smallpox, the assurance of immunity at three-year intervals is considered adequate, if over the signature of a registered physician; yearly assurance should be given by an accredited public health official in case of epidemic or malignant smallpox.

Any person without a certificate should be refused international travel and failure of a carrier to observe this requirement should call for a penalty. Persons arriving without certificates should be vaccinated and placed under observation or surveillance until immunity is assured, or should be detained for the remainder of fourteen days not expired after last contact. Objectors should be required to obtain the prior consent of the countries concerned before beginning travel without immunization certificates.

Plague

Plague in wild rodents has existed in the western United States for years with no more than occasional human infection. Of course, were domestic rodents to become infected widely, thereby increasing opportunity for human exposure, plague might become a much more serious problem.

Pneumonic plague is a menace of note fortunately rare, and its occurrence aboard an international conveyance or in an international port, should require that the patient be isolated and that contacts be detained under observation.

Were a conveyance to arrive with bubonic plague aboard, it would be sufficient to isolate the patient in any approved infectious disease hospital. Even if persons were to enter the United States without such segregation, secondary cases would be very unlikely. Undoubtedly endemic disease has been cared for in this as in many other countries without unfortunate consequence. The value of antiplague vaccination is not at this time sufficiently established to warrant its acceptance in lieu of all other quarantine procedure. The chief concern is of the introduction of plague infected and flea-infested rats among the rodent population of ports of arrival. This phase of the subject will be discussed in the section on Ship sanitation.

Leprosy

No special quarantine procedures need be instituted against leprosy although infected aliens should not be granted international passage except under close immigration control. If arriving otherwise in a foreign port, a patient should be detained and returned to his native country.

Despite recognition by quarantine officers of advanced stages of this disease, the probability of detection and identification of persons in early stages at quarantine stations must be considered slight. Traditional abhorrence of the disease should not prevent judicious rather than hysterical assessment of the problem.

Persons to be detained for observation

In the United States and other countries of like sanitation and health standards, detention in quarantine should be limited to the following exceptional conditions of arrival:

(1) Persons whose exposure to pneumonic plague has been less than seven days before arrival.

(2) Persons, unvaccinated or non-immune to yellow fever, from an area of epidemic yellow fever less than six days before arrival.

(3) Persons, refusing vaccination on arrival and not vaccinated within the preceding three years, who have been exposed to smallpox less than fourteen days before arrival.

Detention of these persons need not be in a hospital but persons in the second category should be required to remain behind screens.

Personnel employed in and about all ports of entry should ordinarily be required to be immunized against smallpox, yellow fever, and typhus.

QUARANTINE FORMS AND DEVICESInternational travel log and immunization record

The examination of all persons just prior to international travel by a qualified quarantine official would be most desirable, but it is evident that no such procedure is likely to be effected in view of obvious impracticability except perhaps in the military services or in post-war immigration processing. In the absence of such examination, the passenger should be required to give a written statement of his whereabouts for the past fourteen days in order to permit evaluation of his possible contact with quarantinable disease. He should also offer valid certificates of vaccination against smallpox, against yellow fever if he has been within areas considered endemic or epidemic, and against the other quarantinable diseases in accordance with the policy previously discussed. Certificates should be signed either by Public Health Service officers, or by selected physicians approved by the Public Health Service or by the consuls of the countries to be visited.

Data can be given in a Travel Log and Immunization Record which should be internationally approved, and should be possessed by every individual in international travel. Any form for this purpose should be kept as simple as possible, and the use of a consolidated form, particularly for immunizations, should be insisted upon rather than separate forms for each. A suggested example of this document is presented in the Appendix (Item 13), which can be inserted in a typewriter or filled out by hand.

Forms should be available from the agent of the carrier in order to facilitate travel procedure, and the passenger should be required to fill in data as to areas visited both before and in the course of his travels. A responsible representative of the carrier should be empowered to copy valid vaccination certificates onto the form, thus attesting to the existence of the original copy. This copying is only for the purpose of obtaining a consolidated form, and in no way should be considered to eliminate the requirements for the original certificates, nor to infer the endorsement by the carrier of the physician giving the immunization.

It is suggested that the difficulties of language be overcome by having the form printed in the language of the country of origin of the

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traveler; translation can be assured by a transparent sheet superimposable upon the traveler's record, so as to cover the unintelligible language thereon with the proper equivalent in the language of the quarantine officer. An example of such a transparency is also included in the Appendix (Item 12). Another method of solving the problem of language difficulties, would be to number the several items in the document and to have available translations of the numbered items.

In the absence of this form, which should greatly simplify quarantine procedure upon arrival, the traveler should be required at each interested station en route and at his destination to present the data as to his whereabouts, and to show the original certificates of immunizations which may be required.

As noted, any form should be kept simple; data, such as age, sex, occupation, etc., which are available from the passport, or on observation, or inquiry should be omitted. It is to be noted that the form suggested is not the usual "health certificate" which indicates only the absence of illness at the moment of a medical examination, without reference to immunizations. It is further believed that quarantine and immigration medical procedures should be kept distinct, even though performed by the same personnel.

Physical inspection

The quarantine processing of travelers entering a port or airfield has traditionally included "physical inspection", a term chosen in acknowledgement that "physical examination" at such a time would be an impracticable routine. This inspection ordinarily consists of a visual examination of the exposed parts of the body, with an appraisal of the general appearance of the traveler. In some places temperatures are taken.

It is recognized that the symptoms of the quarantinable diseases will ordinarily be evident, though in some cases the existence or nature of illness may be missed in rapid routine processing. While the quarantine officer in this country has authority to detain a suspect for extensive examination to establish freedom from quarantinable disease, the value of this provision depends on the efficacy of the screening inspection which some consider competent and others regard as a gesture. Regardless of that point, some consider that physical inspection has the disciplinary value of discouraging disregard or flouting of regulations.

It is believed that evaluation of a traveler's itinerary and immunizations in the light of current knowledge of disease conditions recently encountered by the traveler would afford a more effective, dependable, and defensible quarantine control than is obtained by visual inspection without other aids, avoiding ridicule at times heaped upon the present procedure. This system would be equally applicable to air, marine, or rail travel.

Surveillance

It is at times desired to follow certain persons, entering a country, by surveillance for quarantinable disease. This may become more common as air travel increases in view of the possibility that persons may arrive by air within the incubation time of exotic diseases. In small, well-organized countries, with district health officers in sufficient numbers, persons under surveillance can be followed with ease,

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but in large countries the practice becomes difficult and frequently fails.

The technic of surveillance has varied. In the Eastern pilgrimages, its completion is assured by the deposit of a bond by the traveler; the same procedure is employed in the Gold Coast, and was recently adopted for the British West Indies, since it was considered that a monetary incentive or penalty was necessary.

Present practice of the U.S. Public Health Service places the responsibility jointly on the passenger without bond, and on the local health officer, with no consistent method of follow-up. The efficiency of this method is not known, for while it is anticipated that quarantinable disease would be reported to the U.S. Public Health Service, there is no data available as to the number of persons for whom the system of surveillance may have failed.

It is recommended that persons placed under surveillance in the United States should deposit \$100.00 with the Customs official, and be given in return a serially numbered receipt in the form of a return post card (App. Item 14). The receipt should contain instructions to the passenger and the physician to be consulted. The passenger should present the card to the physician of his choice and upon completion of the surveillance, the card, properly filled out, should be returned to the Customs official who will return the deposit fee and forward the card to the Chief of the Division of Foreign Quarantine, U. S. Public Health Service. The passenger should be required to report every second day by telephone or in person, to either an authorized Public Health Medical officer or to a licensed physician, and in person on the terminal date of surveillance.

The details of handling the money and the receipts should be worked out by the Treasury Department. This procedure has been discussed with the consultant to the Commission from the Bureau of Customs and in his opinion is feasible.

Surveillance should be limited to those persons who, because of probable exposure, actually warrant this procedure, as in the following circumstances:

- a. Persons from an endemic yellow-fever area less than six days, and unvaccinated or non-immune.
- b. Persons from an area of epidemic cholera, not immunized and arriving in less than five days after exposure.
- c. Persons, vaccinated upon arrival, who have been vaccinated within the preceding three years, and who have been exposed to smallpox less than fourteen days before arrival.

This practice would minimize the number of persons placed under surveillance, and at the same time assure effective procedure when considered necessary, whether the traveler became ill or remained well. It is necessary that addresses given by travelers for surveillance be dependable, and the names of transient hotels should not be accepted as a rule. Permanent, semi-permanent, or business addresses should be required; the local office of the carrier may at times suffice.

On some occasions it will be necessary to permit important persons to travel internationally without having been properly immunized. From

the public health standpoint this will involve yellow fever and smallpox only. In order to facilitate his travel and at the same time insure that such requests are not excessive, it is proposed that all requests for U. S. citizens and military personnel be forwarded through proper channels to either the Secretary of War, Navy or State. Others should forward requests to comparable authorities. The proper authority should then furnish the applicant, if he deems it proper, with a statement attesting to the urgency of the trip and requesting all countries to honor the request. Such an individual should be immunized at the first opportunity and report for a physical inspection at least every other day until the immunizations become effective. If passing through a yellow fever zone during the same period he should remain behind screens from sundown to sunrise, and should sleep under a bed net.

Communicable diseases

The terms of reference of the Commission directed it to inquire into the general problem of exotic and communicable diseases, and therefore in several paragraphs will be found reference to certain non-quarantinable diseases.

Some communicable diseases not on the quarantine list should be notifiable to the local health authorities, and infected persons should be isolated by the U.S Public Health Service on account of these diseases whenever the local health authorities cannot, for adequate reason, handle the situation, costs in such instances being assessed to the local agency. These diseases should include typhoid fever, chicken-pox, measles, meningococcic meningitis, whooping cough, scarlet fever, diphtheria, poliomyelitis, and infectious encephalitis; others might be added as required locally. Notification without detention should be made in known cases of malaria, filariasis, leishmaniasis, leprosy in a citizen of the United States, relapsing fever, trypanosomiasis and rickettsioses other than louse-borne typhus fever. As noted elsewhere, the Commission is of the opinion that none of these need be added to the quarantinable diseases as understood in international procedure.

Quarantine hospitals and detention facilities

Rarely should it be necessary for the U.S. Public Health Service to own and operate detention space for quarantine purposes. Marine hospitals, or other federal, state, county, municipal, or private institutions should be utilized providing adequate isolation facilities are available. It is considered that any quarantinable disease can properly be cared for in the isolation section of a licensed hospital in this country without undue exposure of attendants or of other patients. Certainly endemic cases of the quarantinable diseases have thus been successfully handled. On the rare occasions when a group of persons may require detention for a short period, local hotels or other buildings may be utilized. Funds formerly devoted to the upkeep of special detention spaces, and to transportation to inaccessible stations may be better used in some other public health activity.

Boarding of vessels, planes, and trains

For years it has been increasingly apparent that the use of well-trained physicians to meet ships, and to inspect planes and passengers was a questionable use of critical manpower. This has in practice been reflected in dissatisfaction with such assignments on the parts of ambitious officers. Some countries with sanitary standards comparable to those of the United States have already substituted trained but non-medical personnel for this purpose, and if the system outlined in this report for disease notification, and for individual travel-logs and immunization records were adopted, physicians would be needed only in consultative capacity.

In the routine handling of passengers arriving by air, a nurse, preferably with public health training, should be able to carry out all necessary functions. There should be available for consultation when necessary either a medical officer of the U.S. Public Health Service, or an approved local civilian physician familiar with the quarantine viewpoint. This practice is now in effect in certain Army posts in foreign areas where quarantine duties are being well handled by Air Corps nurses.

The question has been correctly raised as to whether or not a nurse would be able to perform these duties. There is no question concerning her ability from a professional standpoint. The fact that nowhere in the world to date has a single case of quarantinable disease been encountered in international air traffic, suggests that one not even so well trained as a nurse would be able to perform the duties, they being essentially clerical in nature. The question concerns the psychological effect on the passengers and crew which might result in a belief that the function lacked importance and therefore could be side-stepped. The general esteem in which nurses are held, the general use of women as hostesses in and about air fields and the fact a physician would be always available for consultation would appear to assure success to the use of nurses in this duty. In certain ports, physicians of the Civil Aeronautics Administration would be available as health consultants.

In marine traffic, the essential information could be obtained by a Sanitary Inspector or by other personnel below the status of physician including the Customs officer, Immigration Officer, or the pilot. It is understood, of course, that when such personnel encounter a situation beyond definitely prescribed limits, a physician should be available for consultation. These suggestions, while opposed to the tradition that all quarantine must be accomplished by a medical officer, are already in effect with success in some Dutch, Canadian, and British ports. It is to be emphasized that the non-professional personnel will not be called upon to determine medical judgements, for which they are obviously unqualified, but rather to determine compliance with quarantine requirements in the matter of travel, elapsed time, and immunizations, essentially clerical functions. Severe penalty for non-cooperation should discourage carriers from attempting any advantage of the situation.

Radio and signal pratique

In recent years, under close control, certain reliable and well-

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known vessels, on regular run, were given permission by radio to dock with quarantine inspection alongside rather than in quarantine anchorage, and in these instances, the inspection when made was more "sanitary" than "quarantine". This procedure saved much time and expense to the carrier, and was a jealously guarded privilege. It has been suspended during the war for security reasons, but it would appear possible to continue the same practice even now, employing signal flags or other media of communications that would permit the saving of time even more valuable now than in peacetime.

In the case of approved ships with valid certificates of deratization or deratization exemption, such radio or signal pratique should be granted to those:

- a. From "clean" ports with or without a doctor aboard provided no one is ill.
- b. From "clean" ports when a doctor is aboard, and those ill do not have quarantinable disease.
- c. From an infected port when no communication has been had with the port.
- d. From an infected port if a doctor is aboard, and no persons are ill with quarantinable disease, and the port was not a plague port.
- e. From an infected port, if the incubation period for the quarantinable disease in question has elapsed en route, and no doctor is aboard but no one is ill, or a doctor is aboard and no one is ill of quarantinable disease, all providing that the port was not a plague port.

In other words, radio or signal pratique should not be granted if:

- a. The ship has had communication with a plague port.
- b. There are ill persons aboard and no physician.
- c. There were cases of quarantinable diseases aboard at any time during the passage.
- d. The time after leaving an infected port has not been greater than the incubation period of the disease in question, and a doctor is not aboard.
- e. The ship does not have a valid deratization certificate, or if there has been evidence of plague among rats on board.

It is evident that the above information is the same as that called for in Quarantine Declaration, so that pratique is granted simply upon the provisions of the Declaration and approval of the carrier with reference to reliability.

Ship sanitation

In times past, it was common to have ships arrive in port with crew and passengers living in conditions of filth. After the rat was identified with the spread of plague, effort was directed against the large rat populations that would develop on board vessels, and which were

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proved to be a factor in the spread of plague from one area to another due to the movements of the ship. In the United States there has been a continuous decline during the past ten years, in the number of rats per vessel recovered following fumigation, and a marked decline in the number of vessels fumigated. This decline may be attributed to a number of factors. The standards of ship sanitation have been greatly improved. Rat life has been kept down by persistent trapping and poisoning, and by measures of general cleanliness.

The most significant factor has been the large numbers of new vessels of ratproof construction placed in service. During the past six years only one vessel of this type has had to be fumigated for the destruction of rat life. An increasing number of vessels already in service have installed ratproofing measures, and this should also be stressed as supplementary to ratproof construction of new ships. The objective of all quarantine officials and ship operators should be the elimination of the necessity for fumigation by improved overall ship sanitation.

Fumigation

Sulphur dioxide, generated by one of several methods, has long been accepted as a standard method of fumigation but is objectionable because of its corrosive action on metals and other ship fittings and in the unwieldy technic of generating the gas.

Hydrocyanic acid gas may be used in concentrations from one half ounce to eight ounces per thousand cubic feet of space, and with an exposure time from one-half to eight hours, depending upon the circumstances and purpose of the fumigation. The minimal dose and exposure time are directed towards the destruction of mosquitoes, while the maximal rate may be necessary for the destruction of all vermin. An acceptable dose for rodents is two ounces per thousand cubic feet, with an exposure time of from two to four hours. The principal disadvantage of hydrocyanic acid gas is its high toxicity requiring that it be handled by carefully trained personnel. The most convenient method of fumigation is the use of fiber discs impregnated with the hydrocyanic acid. This method affords a very accurate dosage for the various sized compartments.

Rat guards

Rat guards on lines from ships to the shore have been a traditional device to prevent rats from boarding ships.

Guards of proper construction and properly applied would effectively serve the purpose. In some ports, an attempt is made to make rat guards effective by patrol by sanitary officers, but observations generally indicate less than 50 percent efficiency in actual application. It is exceptional that a vessel will have all lines protected with guards properly applied. Considering the risk of loading infected rodents in cargo or of their boarding by gangway, through ports, or other means, it is the opinion of the Commission that the general use of rat guards on hawsers may be abandoned. The results accomplished in overall control of rat life on shipboard will not justify the necessary materials and man hours for their application. The same effort applied to other

measures of rat control would be more effective. If a port is infected with rodent plague, or plague is present on board a vessel, or under other exceptional circumstances, the application of rat guards or other special precautions will probably be justified.

New vessels of ratproof construction when properly maintained will not permit a rat colony of serious disease significance to develop. Ordinarily these ships can be maintained completely free from rats.

Ship inspection

The examination of ships for rats or other vermin should be carried out by sanitary inspectors trained for the purpose. These individuals attain, with experience, a high degree of skill and accuracy, and the use of their talents should be utilized, thereby minimizing the necessity for routine periodic fumigation of vessels.

Delousing of personnel and their effects

Much emphasis has in the past been placed upon assuring freedom from vermin of immigrants, troops, prisoners of war, evacuees and the lower grades of steamship passengers, upon entry into the United States. This has perhaps been in part in deference to ideals of personal cleanliness, but primarily was aimed at the exclusion of louse-borne typhus fever. As a result, many quarantine stations have had elaborate steam and cyanide delousing chambers and facilities for delousing of personnel.

However necessary in the United States these installations were in the past, their frequent state of disrepair or conversion at present indicates the rarity of their use in recent years. Due to scientific advances and the disadvantages of steam in the damage of woollens, leather, and other effects, substitute measures have been sought, and employed in the present war. Specially designed chambers for hot air or gaseous fumigants including methyl bromide and hydrocyanic acid gas have been designed, and when carefully built and operated are considered equal to the steam units, at least as far as vermin are concerned. The fact that sterilization in a bacteriological sense is probably not attained has not restrained general adoption of the method. Methyl bromide in particular has been well thought of and provided for use in chambers as well as in impervious bags.

Bathing, and dusts or sprays of pyrethrins for the person have recently been replaced by a louse-powder containing DDT (para-dichloro-diphenyl-tri-chloro-ethane). Change has also been proposed from fumigants, steam, or hot air to the use of DDT for treatment of clothing and effects. That DDT is an efficient insecticide is certain and its use in this manner for routine delousing of personnel and their effects at ports of debarkation and quarantine stations must be seriously considered as a practical substitute for all other methods. Its adoption would eliminate the need for erection and maintenance of expensive and complicated fumigating facilities, and for trained personnel to run them.

DDT, carefully used, would assure the killing of adult lice at the time of application, thus eliminating the danger of transmission of typhus fever since nits are not thought to inherit rickettsial infections. Quarantine requirements would thus be satisfied, notwithstanding the

possible hatching of additional lice later. Despatch at ports of entry would be achieved by simple DDT application, and later hatchings of nits could be prevented or the lice killed by retreatment at reception centers where esthetic rather than quarantine principles could govern. The scientific basis for the procedure, and the demand of necessity for conservation of time, personnel, and equipment are considered by the Commission to justify the adoption of this procedure.

The difficulty of treating barracks-bags and bundled clothing with DDT, if not amenable to thorough dusting of the contents with DDT, might be overcome by twenty days storage, including the time of travel, a procedure accepted to assure the death of both adult and larval vermin. At principle ports of debarkation it might be desirable to maintain sterilizing facilities, using steam or hot air, against possible emergencies and because of public demand, but in all average operations DDT alone should suffice.

Military traffic

Quarantine procedures, necessary in the case of military personnel, need not vary particularly from the above; the procedures should in most instances be carried out by military personnel in accordance with the recommendations of this report in the section on "Administration of quarantine" and App. Item 20.

It should be clearly understood that the interests of the United States military organizations are far broader with reference to quarantine than are those of the United States Public Health Service. The geographic area is much larger and the number of persons traveling is greater. The military occupation of islands and areas which are not part of the United States, its territories and possessions, places on the Army and Navy responsibilities not shared by the United States Public Health Service, and hence a definite administrative organization for quarantine within the Armed Services will be necessary.

EPIDEMIOLOGICAL INTELLIGENCE

The sine qua non of quarantine practice is the knowledge of sanitation and prevalence of disease in places from which passengers, cargo, and conveyances originate. This information must be accurate and current, covering a period before and at the time of departure and available at places and time of arrival. This includes, obviously, vital statistics of the areas of origin and contact.

Few countries, including the United States, are above criticism in the matter of reporting of disease; outstanding contributing factors in this regard include the following: (a) Lack of regulations and mechanism for the domestic notification of disease, (b) lack of trained and critical public health personnel, (c) failure of physicians to report disease, a common fault even in the United States, (d) inaccessibility of rural and mountainous areas and (e) deliberate distortion of statistics with a view to avoiding adverse effects upon commerce, travel, or political prestige.

In view of these circumstances, an international structure is recommended which would provide critique and assistance by trained international

observers in the preparation of vital statistics. It is believed that a group of such experts traveling and interchanging routes through the several participating countries would go far toward establishing uniformity and dependability in vital statistics. These observers and consultants should report to the central agency, any dereliction in the international responsibilities of the countries under their surveillance. It is axiomatic that so far as practicable such men should be recruited from all of the several areas and countries participating in this plan. For already existent means of creating such a corps of observers in the Americas, reference is made to the 19th, 55th, and 59th Articles of the Pan American Sanitary Code.

Consular reports

The United States requires consular officers in certain foreign areas to submit weekly reports on sanitary and epidemiological conditions when requested by the Federal Security Agency. Information is not always available on a weekly basis in all these places, and is sometimes not available at all, nor does uniform practice exist for securing data. Many consuls doubt the value of these reports and question the need for continuing them. Many reports are still forwarded to the Secretary of the Treasury instead of the Federal Security Agency, and this in itself may indicate an indifference to the necessity of compiling the information.

Most consuls have unofficial sources of information in addition to the regular reports which they receive, such as private physicians, friends within the departments of health, and knowledge of drug shipments and supplies. It is possible that more emphasis is placed on such sources than is justified, but the channels should be cultivated as a check on official sources.

The promptness with which information concerning health is received, largely determines its usefulness in quarantine. As presently handled, such reports are from two weeks to several months old when received by the United States Public Health Service; the average is received in the third week after the end of the period to which it pertains. This delay is caused by three factors. The most variable of the three is the delay after the close of the period reported upon until the information is forwarded by the consul. This time may be as short as one day where the consul sends for the report, or as long as two to three months where the data comes to a local consul through the national capitol.

The second delay is in transit from the consul to the State Department, which varies with the distance to be covered and the means of communication employed. Cabled or radiographic reports, of course, are received in a few hours, and airograms in a few days; standard pouch mail may require a few weeks.

The third delay is in transit from the State Department to the United States Public Health Service, usually two to four days. However, those cabled and telegraphic reports which are considered of a critical nature are telephoned upon receipt.

It is further to be noted that after these data are received by the United States Public Health Service, the process of assembling, editing, publishing and distributing them to the several quarantine officers at ports and airfields requires an additional two to three weeks in routine

reports, although special ones may be sent promptly by wire or air mail.

It is therefore obvious that after routine information has been received by quarantine officers, it has exceeded the period in which it may be immediately applicable, although it supplements the periodic statistical summaries received from some countries and provides an accumulated fund of fact upon which quarantine procedure of the United States has been based.

For quarantine needs in marine traffic, disease intelligence should reach the quarantine officer before or as soon as the conveyance, a purpose which would be achieved by weekly reports in most instances. Air travel, however, might demand almost daily reports in occasional instances.

It is apparent that the present system of consular reporting on health conditions of foreign areas is not rapid enough always to satisfy the purposes for which it was instituted, and radiographic or cabled notifications will have to be considered necessary.

Bills of health

Bills of Health have been a traditional feature of quarantine of vessels since the fifteenth century, but although on first examination they would appear to be an ideal solution to the needs of epidemiological intelligence for quarantine purposes they must have serious deficiencies because the International Sanitary Convention in 1926 recommended "doing away gradually with consular visas and Bills of Health." British ports have done away with this document to a large extent, but many countries still cling to it. That the Bill of Health cannot be considered of crucial importance by the United States Public Health Service, is evident from the fact that since the beginning of the foreign quarantine service, none was required of vessels departing ports in which no American consul was located.

The Bill of Health was originally devised because of the absence of any other means of communication, to inform a port of arrival of the existence of disease in a place from which a vessel had departed; or on the other hand that previous infection had been controlled, and the place might now be considered "clean." If the data on the certificate could be made current as of the day of departure, it would be satisfactory, but as in the case of consular health reports, they are almost invariably too old to refer to the visit for which the bill was given.

In instances in which data is not available the vessel might as well have no document at all, and the issuance of the form is only to satisfy the statutory requirement.

Reliance upon Bills of Health under these circumstances is unsound and may lead to either excessive or defective quarantine restriction, or to an unwarranted assurance of safety.

If there were any situation in which it would be necessary to have Bills of Health so that epidemiological data might arrive as quickly as does the conveyance, it would surely be in air-traffic, since otherwise, planes universally arrive long before information is available on which reliably to conduct quarantine procedures. Yet the International Sanitary Convention for Aerial Navigation in 1933, after considering the complications in the use of Bills of Health for world-wide air-traffic, concluded they should be eliminated, in favor of an entry in the flight-log of the

airplane describing sanitation at the ports of departure and of call en route. These entries were to be inserted by the local public health officer.

Unfortunately, such entries were impractical and have generally been discontinued, so that little has actually been accomplished in current notification of airports of conditions at ports of departure.

The point is occasionally made that a Bill of Health is desirable to afford "control" of a carrier by withholding it at the port of origin. At times, this control seems to have been made a matter of discipline and authority rather than of quarantine. Any control needed in quarantine is better obtained through critical handling of pratique on the basis of current epidemiological information than through insistence upon a formality.

It is certain that the Bill of Health has at times been utilized for still other purposes entirely unconnected with health; the continuance of a form which might otherwise be discarded is not justified on this basis alone, particularly in view of the availability of the manifest for these purposes.

In a subsequent section, "Suggested plan," a feasible method is presented for quickly placing before a quarantine officer the essential data upon which quarantine may be based. If this is effected, no formal bill of health will be necessary, and procedure can be adjusted in accordance with the log of the carrier, and with the individual Travel Log and Immunization Record of the travelers. As long as Bills of Health are legally required in the United States, and when for other reasons they may constitute the only means of furnishing information concerning diseases in foreign countries, simplified Bills of Health may be used in marine traffic (App. Item 15). They should be signed by a United States consul or any official physician of the United States on duty at the port of departure.

An alternative measure, which in some respects is preferable, would be a Quarantine Declaration made out aboard the conveyance by a physician or by the commanding officer, to be acted upon according to the judgment of the quarantine officer. A revised form for a United States Quarantine Declaration for aircraft is included in the Appendix (Item 16). A suitable form for marine traffic is already in use.

It is not anticipated that the partial adoption of newer methods of international exchange of epidemiological data must necessarily await the end of the war, especially in this hemisphere which represents the most critical areas in the quarantine interest of the United States at present, except those which are primarily of military concern.

Suggested plan for international epidemiological intelligence

It is recommended that a world-wide system of international exchange of epidemiological data be set up on the pattern employed, before the war, in the Far Eastern Office of the League of Nations at Singapore, utilizing telegraphic, cable, and particularly wireless communication. In this arrangement, outlying health stations in each political or national area would report weekly, at a fixed time, to the capitols or designated centers, and these in turn would forward summaries to designated international regional offices, favorably situated from the standpoint of geography

and communication, and maintained by appropriate international health agencies. That these agencies might differ in various areas of the world would be immaterial to the functioning of the system. Reporting to national and international centers in this manner should utilize any immediate means available, whether telephone, telegraph, cable, or wireless.

The international centers, which would receive their data also at designated hours weekly, in perhaps the half-day following the receipt of the individual reports by the national centers, would edit, summarize, and exchange the summaries with the other international centers within the third half-day, and issue a general radio broadcast of the consolidated reports to their constituent areas. These reports being in prearranged abbreviated International Code would be accessible and intelligible to all areas, and might be received at the local outlying stations directly, or by the national centers, with distribution to the outlying stations by telephone, telegram, cable, or teletype. The last means would be particularly applicable to airports to which weather and other data are normally distributed in the same manner.

With careful supervision and adjustment the critical quarantine data of the world could in this manner be made available at all interested quarantine stations within forty-eight hours after the period to which it pertained, thus making the data useful not only for marine, but also for long-distance aerial traffic. Confirmatory reports might also be sent out but in most instances would probably be superfluous, and replaceable by periodic statistical summaries from the international offices. Tentative suggestions for such international centers include Singapore, Moscow, Alexandria, Geneva, and Balboa. The Balboa station should be able to cover both North and South America.

The Appendix (Item 17) contains a suggested code for such a system, and a typical message illustrating the condensation and economy which might be effected over word-codes.

A supplementary mechanism might at times be desirable in addition to that just described, permitting even more rapid adjustment of quarantine procedures should the necessity arise in air-travel. This would provide for similar code reports (App. Item 18) via the communications system of the air-carrier, which might be sent alone, or which might be incorporated in flight-plans or interstation weather reports. Occasions for use of this mechanism would be extremely rare, notifying aerial ports of call and termination of the local occurrence of an epidemiological situation which demanded immediate change in the quarantine handling of contacts with the area. The communications office of the carrier should be obligated to notify appropriate local health officers. In view of the rare need for this mechanism, the cost and inconvenience occasioned by it would be insignificant, and it might well be made an obligation of the carrier involved. Routine confirmation and readjustment of the quarantine practice would be accomplished by the regular weekly reports.

In making recommendations for a more elaborate system of notification of conditions of health throughout the world, the Commission realizes it is submitting itself to criticism that such current information is not necessary in order to exercise a reliable quarantine system. The Commission is of the opinion that with more rapid traffic both by air and sea, it is desirable to have accurate and current information at hand, so that

traffic may be expedited with confidence and surety, and so that by this knowledge quarantine officers will be able to exercise as much control as needed and at the same time not interfere with the flow of traffic.

Periodic health reports by international agencies are already provided by the International Office of Public Hygiene, by the International Health Office of the League of Nations, and by the Pan American Sanitary Bureau. These are of great value in many respects, but are not currently significant in quarantine practice because of the age of the data. When received, these reports are from several weeks to several months later than the periods of time which they cover, being from this standpoint even less valuable than the consular reports. As already noted, it is conceived that the international communications centers discussed above for quarantine purposes would be functions of these same international organizations in their respective areas, and the present reports of those bodies would be issued as statistical summaries and confirmations.

Direct notification of epidemiological emergencies between countries which are contiguous either geographically or on trade routes must remain for use in unusual circumstances, especially of restricted interest, but the general adoption of such action could result only in confusion. On the other hand, nothing in the method of notification described above should be taken to preclude the cabled reports by consuls of urgent epidemiological information, which should alter quarantine procedure at places of entry, nor the periodic health reports of consuls, if any need for them existed after establishment of the system described.

Under circumstances of war, in which the quarantine problems are predominantly concerned with military carriers and personnel, the basic concepts and provisions discussed in this section need be altered only in so far as demanded by military interest. This could largely be effected as suggested in the sections on "Administration", and "Prevention of quarantinable and exotic diseases in military forces."

DISINSECTIZATION *

Problem of implantation of insects by aerial transportation

That insects and other animals may be carried by aircraft to areas in which they do not occur naturally has been appreciated for many years. The potential danger of the implantation of such insects has been considered at length in writing and lecture which have frequently been sensational and alarmist. Careful determinations were needed of the qualitative and quantitative risks to which receptive areas might be subjected in this regard, and numerous studies have been made in several parts of the world; the United States Public Health Service pioneered in this work.

*The words "disinsectization", "disinsectize", "delouse", "derat", "deratization", etc., have many objections both from a phonetic and etymological standpoint. In an attempt to find more acceptable words, Prof. Kemp Malone, authority on English words, was consulted. He suggested the word "bane" in combination with the various stems as "rat-bane", "louse-bane", "insect-bane", "rat-bane", etc.

It is a curious fact that although surface ships have been responsible for the transplantation of insects, both harmful and dangerous, and numerous instances have been known of the occurrence, infinitely more concern has been manifested and greater effort has been expended in attempts to prevent insect transportation by aircraft.

A few authors, including Pemberton, have studied the agricultural aspects of the problem, but most investigations have consisted in identifications of insects recovered from planes after foreign flight, and discussion of their potential importance in human disease. This has focused principal attention on mosquitoes, flies, and occasionally fleas, lice, and other rarer forms, while mites, ticks, midges, and beetles, along with many other species have often not been enumerated.

The particular emphasis upon *Aedes aegypti* and *Anopheles gambiae* has suggested that they alone were the entomological problem in air traffic. Complete recovery and identification, however, show the fallacy of this conclusion, and point to the fact that of insects and pests borne by planes those of importance in human disease comprise a minor percentage of the total. The significant feature of the remainder is their potential agricultural importance, a viewpoint which apparently encouraged the development of insecticides and methods for their use by agricultural agencies. Principal agricultural interest has been less in stowaway adult forms than in eggs and larvae, and hence in the exclusion of certain articles, including flowers, fruits, and vegetables which act as hosts.

The general restriction of interest in disinsectization to mosquitoes has resulted in control measures assayed largely upon them. Pyrethrins have proved satisfactory in this regard, and in solutions have been dispersed by a variety of mechanical means including power atomizers, steam actuated vaporizers, hand-guns, and fans. More recently, the freon actuated aerosol spray has been widely adopted. Despite the high efficiency of these measures in the control of insects concerned with human disease as encountered on planes, the resistance of many agricultural pests is great, with the result that measures now in use are largely inapplicable to insects more difficult to control and of more disastrous ultimate consequence. Recently, the control of stowaway insects in airplanes by synthetic insecticides has been studied and though promising, pyrethrins remain the chief weapon.

Since insects have survived conditions of flight, including altitude, cold, considerable heat, fuel fumes, oil films, and vibration, in an apparently viable state, it has been assumed that only reasonably favorable circumstances were needed to promote growth and implantation in new areas. This seemed reasonable in view of the well-known introduction, by surface travel, of the cotton boll-weevil into the Southern states, of the corn-borer into the Midwest, and of the Mediterranean fruit fly and mosquitoes into the Territory of Hawaii. Such introductions into California have been estimated to exceed two hundred fifty species, and into Hawaii, over one thousand species, so that there was evident no a priori reason that the same should not occur in aerial transportation.

It must be recognized at once that aerial transport does not permit the profusion of breeding spaces aboard the conveyance that characterized particularly the older vessels, and also that the aerial problem under discussion is mainly one of stowaway insects rather than those carried

in larval or egg stages, as in the case of the boll-weevil, corn-borer, and fruit fly. Yet, it is interesting and challenging that so few specific instances have seemed to imply aerial introduction.

In 1930, *Anopheles gambiae*, native to Africa, was found in Brazil, and proved disastrous as a vector of malaria until its eradication in 1940. The association of its discovery with the inauguration of trans-Atlantic air service suggested this means of introduction.

The Commission has been impressed by the incomplete knowledge on the part of many regarding *Anopheles gambiae* in Brazil. In April 1944, a well known entomologist and authority on economic entomology, stated before a conference on pest control that the mosquito was implanted in Brazil by the airplane. Because of widespread misunderstanding a brief review of the known facts as recorded by Soper and Wilson is presented.

The epidemic of malaria caused by this species was severe but did not embrace the whole country as commonly implied. As a matter of fact in Rio Grande do Norte it involved a costal area about 300 kilometers long and an average of 50 kilometers in depth. In the adjoining state of Ceara, the distribution, with the exception of small isolated spots around Quixara and Madalena, was confined to the valley of the Jaguaribe river, an area about 300 kilometers long and on an average of 100 kilometers wide. The total area involved was about 17,500 square miles of Brazil's nearly 3,300,000, or about 0.5 percent.

As pointed out by Soper and Wilson there is strong evidence that the insect was not brought over by planes, for reasons clearly analysed by them, but "almost certainly" by French "avisos" (destroyers). The insects were likely transported in late 1929 or early 1930, and in March 1930, Shannon collected over 2000 larvae at Natal. The presence of these mosquitoes manifested itself in the almost immediate outbreak of an epidemic of malaria in Natal for in less than four months after the estimated time of the implantation the numbers of patients were counted in the hundreds. The epidemic was brought under control, but there began almost at once a slow and silent spread to the North and West which lasted until 1937 when the more wide spread epidemic began which resulted in the undertaking of the now well known control measures. It is important to note this spread was not by the airplane but by surface vessels, trains and automobiles. It is also significant to observe that Natal is naturally unsuitable for the establishment of *Anopheles gambiae* and had there not existed "man-made dikes built along the river front to transform the salt-water tidal flats into fresh-water hayfields, *gambiae* might well have failed to secure a bridgehead on the American continent."

The finding of *Anopheles gambiae* on planes from Africa must be carefully evaluated before jumping to the conclusion that they are of great significance. Brazilian inspectors have reported the recovery of several hundred *Anopheles gambiae* from the thousands of planes flown from Africa to Brazil. From recent knowledge gained by periodically cleaning out dust and debris from these planes, it is now evident many of the insects found were those which entered the plane and died long before it took off; since thorough cleaning of the planes has been instituted, the counts of dead stowaways has greatly decreased. Of all those recovered something of the order of ten have been said to have been alive when captured. How alive is a matter of great question; there is a well known tendency to report as "alive" any insect found on a plane which can even

feebly move one appendage. More recently, after critical study by expert entomologists, the conclusion has been reached that some at least, formerly labeled "alive" were not viable and never could have recovered from the trip.

In this connection great significance has been placed on the reported finding in September 1943 of five adult *Anopheles gambiae* in Natal. The Commission made every effort to verify this report. It is highly significant that no larvae were found and no other adults taken, in spite of an exhaustive local survey.

In the Pacific area during the present war, despite occasional rumor to the contrary, Anopheline mosquitoes have not been found upon careful search by entomologists of the occupying military forces, on any of those islands previously free from them.

In Central America, *Anopheles darlingi* has been noted for years on the eastern seaboard of Honduras, British Honduras, and Guatemala. The nearest other habitat of this mosquito is along the north coast of South America and adjacent Panama. According to Komp, the mosquito has probably existed in all these areas from earliest time, and was not transferred by traffic. As recently as 1941, competent surveys on the western seaboard of Guatemala, El Salvador, Honduras and Costa Rica, failed to show the presence of *Anopheles darlingi*. Yet in 1943 the mosquito was alleged to have been identified at Choluteca in Western Honduras. Although aerial importation is thus suggested because of limited rail and automobile traffic, the identification of the species is in considerable doubt and cannot be verified. Even if correct, it is more than likely that as on the Eastern seaboard, this represents an instance of the discontinuous distribution of an insect which was once generalized.

The island of Grand Cayman in the Caribbean was reported to have been infested with anophelines during current military operations, but investigation has revealed knowledge of three anopheline species on the island as early as a British governmental survey in 1939, before flights were made to that Island.

On the other hand there are numerous instances of narrow and apparently insecure boundaries between infestation with and freedom from a given insect which have remained intact despite extensive aerial and marine traffic. *Anopheles albimanus* is as close to Florida as Cuba, and *Anopheles darlingi* of Venezuela is within twenty miles of Trinidad. Aerial and marine travel between these areas has been common for years, including innumerable small boats entirely without insect control. Yet the mosquitoes have not become established across the narrow gaps.

In 1904, 131 adult specimens of *Anopheles albimanus* were found in Key West, Florida, but no other specimens have been taken in this region to this date. This importation must have been by boat, certainly not by plane, and evidently ecological conditions did not permit the species to maintain itself, although King believes the temperature of the water is suitable for the species as far north as 28 degrees latitude. The species is taken annually in the irrigation ditches about Brownsville, Texas, which is also south of 28 degrees latitude, but it has never spread from that locus nor has it assumed an importance other than of scientific interest. It obviously gained access to that place too before the days of aerial navigation, and in spite of enormous numbers of aircraft flying without disinsectization to other parts of the country, including southern states, no evidence appears to indicate dissemination from this locus.

More recently interest has been directed to a report by the entomological service of the Army of the finding of *Anopheles albimanus* in a drainage ditch 300 yards from the run-way of the air strip at Boca Raton, Florida. The circumstances surrounding the report need considerable clarification before they can be properly evaluated. On 22 May one large larva of the species was said to have been captured. On the next day and the day following, 2410 dips were made in the region and 13 larvae of *Anopheles quadrimaculatus* and 8 of *Anopheles crucians* were found. Since then over 6000 dips have failed to reveal any other larvae of *Anopheles albimanus* and search in the region has failed to disclose any adults. There is, however, a report that one dead adult was found a year ago in a culvert in that region.

Assuming the identification to be correct without the larva being bred out, one may speculate as to where it came from. Only three planes have landed on the field, from abroad. Two came from Nassau on April 24 and May 2 respectively, a region from which it appears unlikely *albimanus* might be transported and the third arrived on 1 May from Puerto Rico, but had stopped at Morrison field en route, where presumably it was disinsectized, in spite of the fact it had taken off from a field in Puerto Rico which is almost mosquito free.

Boca Raton is a south Floridian costal village into which small fishing and interisland boats frequently dock and they may have been responsible for the transportation of the species as occurred in Key West earlier. Up to the present time there is no evidence the species has gained a beachhead in that area.

The fact that *Anopheles quadrimaculatus* of Florida is not found in Cuba or other Caribbean Islands is equally significant, and in the Pacific, despite small-boat traffic for generations, many of the islands appear not to have had Anopheline mosquitoes implanted in them. It is true that in all these places the speed and frequency of intercourse have become greatly increased, but no instance has yet been discovered of implantation of mosquitoes.

The role of natural barriers has frequently been emphasized in this connection. Oceans, deserts, mountain ranges, prevailing winds, and climatic conditions have been thought to restrict the spread of insects, and whether travel is faster, more frequent, or by a wholly different mode, these barriers probably remain among the most potent factors in the control of insect dispersal.

Without doubt single or many individuals of various species of insects have been carried across a natural barrier, yet have failed to establish themselves in a new region. Interesting examples include the instance of *Aedes vigilax* which was found in the Fiji Islands three years ago, and which died out in one season and has not been seen there since. Similarly a single adult was taken on Espiritu Santo but during a subsequent eighteen months no other specimens have been found. It is not unreasonable to suppose in both instances the species was introduced from New Caledonia, but finding environment unsuitable, failed to establish itself.

While both male and female insects have been recovered alive from arriving planes in numerous surveys, there is the important difference from their transportation by surface carriers that there is no breeding en route, and far fewer insects are commonly involved. Thus, the likelihood of fecundation of non-gravid females during or after transportation

is tremendously reduced, and even gravid females have questionable likelihood of successful search for breeding places and evasion of natural enemies. It is true that certain insects, including some species of mosquitoes are fecundated before they leave the immediate surroundings of their breeding places and remain fertile for life. Nevertheless, many hazards have to be overcome and many conditions have to be fulfilled before a second generation of any given insect comes into being, and travel by airplane across an ocean, a desert or a mountain range does not add to the certainty of this phenomenon. Information concerning the time of fecundation in the case of *Anopheles gambiae* is not available. Transportation of non-gravid females only, or of males only, may swell the count of insects recovered, but can be of no significance in the problem of breeding and implantation. This factor of dilution is probably of importance comparable to natural barriers in limiting the spread of insects.

The question has been raised as to whether the factor of dilution would continue to exert itself in the post war period when there is expected such an increase in commercial aerial traffic. It now appears that it will take years for commercial air traffic in the South Atlantic area to equal the present volume due to requirements of the war.

In addition to the numbers of insects, the immediate environment at the place of their release plays a determinative role in their implantation. Although Pemberton, in connection with biological control of agricultural pests, has repeatedly and purposely implanted foreign species of predator or parasitic insects into Hawaii by the liberation of small numbers, and although the accidental introduction of insects there and elsewhere in some instances may have resulted from equally small inocula into particularly favorable environment, the modern airfield is arid, barren, and unsheltered from the standpoint of insect implantation. Obviously there are exceptions, as those fields constructed in jungles, but even there the factors of dilution and biological control are still operative.

It is, therefore, evident that despite the possibility of implantation of insect stowaways by aircraft, the actual danger is of a much smaller order than has frequently been supposed. The likelihood of implantation by means of material heavily infested with eggs or larvae, such as fruits, flowers, vegetables, raw cotton, or packing material, is a far greater risk. A mango containing a hundred larvae of the mango-fly is potentially much more dangerous than an adult fly riding a plane as a stowaway, even if gravid.

In this connection great concern is now expressed by the Department of Agriculture over the possibility of implantation of noxious pests in this country by means of packing around gifts from servicemen overseas. It is suggested every package arriving in this country from these sources be stamped as follows: "Your Government requests you to burn the packing contained in this package promptly, in order to prevent the possible spread in and around your residence, of insect pests which may be present in this package."

A factor of uncertain importance is the exact effect of flight conditions on insects. While it is true that many adults, apparently viable, have been recovered, even after long flight, evidence is suggestive that if confined under circumstances permitting no rest except upon vibrating

surfaces, resulting in the beating of antennae and wings against hard structures, death may result during flight of the plane. The extent to which reproduction might be damaged by sublethal vibration and other effects of air travel remain to be demonstrated, for apparently no attempt has been made to breed out catches of insects taken from planes after flight, although Mr. Oakley (Department of Agriculture) has observed flies and roaches depositing eggs after flights on airplanes.

Despite these favorable considerations, caution is indicated by the experience of Pemberton with the intentional release of insects in Hawaii. Following introduction, the speed of propagation apparently varies widely with the species. In some instances, the seeded and adjacent islands became populated with the new form within a single season; in others several years were required before successful implantation could be demonstrated. Although searches have generally been competent, the fact that species newly implanted as a result of recent military and aerial activity have not yet been demonstrated, does not mean that such implantations may not be discovered in the future.

Reasonable policy in the control of insect transmission by aircraft should, obviously, regard transplantation as a potentiality, rather than an imminent threat. Control must be directed against the importation of viable insects, but failing that must keep the numbers so small that successful implantation is prevented. These goals are closely related to the sanitation of airfields.

It must be recognized as unlikely that any method of insect control will prevent the entry of all insects into aircraft and consequently their recovery after death. Thus the presence of dead insects on a plane is no reflection on the method of disinsectization used on the particular flight. It is further evident for many reasons that the occasional live insect recovered after disinsectization must be expected and is not the occasion for undue alarm. The institution of measures to prevent such an occurrence is both impracticable and intolerable under the present circumstances.

Importation of disease by infected vectors

As a rule, even in severe epidemics of diseases transmitted by the mosquito, only a small percentage of females is demonstrably infected, and a less percentage is infective at any given time. Considering the small numbers of insects actually found aboard airplanes, and ~~diminishing~~ this by the improbability that those found would be infected, much less infective, the importance of the stowaway insect as a carrier of disease becomes infinitesimal. This is further emphasized for yellow fever, as no flight operations are occurring nor would likely be continued without the most strenuous supervision from fields in epidemic areas of the disease. It is, of course, possible that, if aboard, an infective mosquito might feed upon a crew-member or passenger, but this likelihood is negligible, and the probability of inducing the disease is even less, because everyone bitten by such a vector does not acquire the disease.

If an infective insect were to escape a plane on landing, there is a good possibility that no person would be bitten before the insect died, and again even if bitten, a person might not become infected. The probabilities, therefore, of infection with malaria, filaria, or yellow

fever by a mosquito transmitted by airplane, are too small to justify special regulations or procedures against them. The importance of a guard is recognized particularly in view of public opinion, but it should be practical and realistic rather than quixotic. If diseases are introduced, it will probably be by infected persons. In comparison with the possibility of introduction of disease per se, the possibility of establishment of new foci of insects capable of acting as vectors of disease even though not yet known to have occurred, is a greater potential risk.

There is evidence to conclude that interest in the transmission of insects by plane should be more agricultural than medical, with rare specific exceptions, as for example that of *Anopheles gambiae* in Brazil. Moreover, as already noted, control measures effective against agricultural stowaways would undoubtedly be effective against those of medical importance, although the converse does not hold.

For the quarantinable diseases, significant insects include fleas or lice infected with plague or typhus, flies carrying cholera, and mosquitoes infected with yellow fever. Of these, the most important is *Aedes aegypti*, since by the nature of personnel usually carried on planes, the problem of lice is almost non-existent, and rats or other plague-infectable rodents are rare on aircraft. Furthermore, in countries like the United States, lice so carried could be considered insignificant among a population which for practical purposes is not lousy, and while flies may be important in hyperendemic or epidemic cholera areas, these areas are so restricted geographically as to require only local policy.

Yellow fever: Transmission by aerial route

Special considerations need be given this disease since many countries have directed their regulations against it, including the assumption already discussed that infective insects might bite while on the plane. In addition to the considerations presented above, there is evidence to indicate that *Aedes aegypti* enter planes only under the rarest conditions.

Records of insect recoveries by the U.S. Public Health Service at Miami reveal that only a single insect of this species has been found in the examination of more than twenty-thousand planes. In nearly a thousand planes examined by Sullivan at Accra, only one *Aedes aegypti* was found, and Whitfield could find record of only two others in all the reported observations in the world up to 1939. One specimen was taken from a plane at Natal in 1943. The Commission has records now of planes examined at Hawaii, San Antonio, Brownsville, New Orleans, Washington, Presque Isle (Me.), Liberia and Brazil, and in all of these only four *Aedes aegypti* have been found. Even records from Egypt fail to reveal the insect. In all, only nine specimens of this species have been recorded as taken from many thousands of planes; all but one was dead.

It would be astonishing, indeed, if *Aedes aegypti* entered planes frequently or in large numbers, for it is a traditional household variety, with a flight range usually not over a few hundred feet. To obtain an *Aedes aegypti* infected with yellow fever on a plane under even the worst conditions would be, for all practical purposes, impossible. Any program based entirely on prevention of this rarity could not be justified in the

light of present knowledge. All evidence emphasizes that "Aedes aegypti do not ride planes."

Responsibility for methods of disinsectization

Certainly in the United States agricultural pests appear of greater importance than insect vectors of disease. Effective measures against the hardier pest forms, furthermore, would amply take care of the usual disease vectors. To avoid duplication of effort, it would seem advisable for the United States Department of Agriculture to administer all control of insects in aerial traffic.

Because of the notion so generally prevalent that there is an enormous hazard to the public health due to a great probability of transmission of *Aedes aegypti* infected with the virus of yellow fever and of the transportation of sufficient numbers of *Anopheles gambiae* frequently enough to make implantation of it in the United States a real menace, it may be wise at present for the United States Public Health Service to share with the Department of Agriculture the responsibility for the control of the transportation of harmful mosquitoes. The latter organization should, however, be encouraged to take more and more control as permitted by public and professional sentiment, and general acceptance of disinsectization of airplanes by the Department of Agriculture should be obtained.

Hazards to the United States

The possibility of long non-stop flights has occasioned much concern in the United States over the likelihood of introduction into this country of *Anopheles gambiae*, or of *Aedes aegypti* infected with yellow fever, particularly from Africa. Such flights have, it is true, been made but only as demonstrations or under pressing and extraordinary military requirement. Their frequent or regular performance is not to be anticipated in military flight, and even less in commercial operations, in view of the necessity for intermediate stops from the standpoint of economy. Decreased payload and increased deadweight devoted to fuel on such long flights will continue to restrict their numbers to a very small figure. Intermediate stops will function to protect the United States, particularly when flight is made through Brazil which has such an excellent system of disinsectization. It may further be noted that transoceanic flights to the United States from Africa or South America, even if non-stop, could hardly originate from yellow fever areas in those continents at this time.

Fumigants-Disinsectants

A goal has frequently been set of so sanitating airfields that insects could not possibly enter planes resting on the fields, which might, therefore, be considered safe oases amid dangerous areas. This has been expressed with respect to yellow fever in the concept of "anti-amaryl aerodromes", but in the sense of this term as outlined by the International Sanitary Convention for Aerial Navigation, 1933, the goal has not been practicable. It is clear that the conference was thinking only in terms of *Aedes aegypti*, and while aerodromes might be kept relatively free of this species, and in instances have been, the task is multiplied if there

are included all possible vectors experimentally capable of transmitting yellow fever. Further, if the concept were broadened to embrace an "insect free" field, nothing of the sort could possibly be attained within reason. That these opinions are shared by other investigators in the field is shown in the recommendations of the quarantine group of the United Nations Relief and Rehabilitation Administration that the concept of the "anti-amaryl aerodrome" be deleted from the International Sanitary Code for Aerial Navigation, 1933. This, of course, does not infer that insect control measures about aerodromes should be abandoned, but rather is a realistic acknowledgement that such measures cannot be relied upon to eliminate the need for other quarantine safeguards.

If, then, insect-free aerodromes are not feasible, and until the development of new and more effective methods of proofing aircraft against insects, present methods of disinsectization of aircraft must be continued when the control is considered necessary.

Several insecticides have been employed in the past. Formaldehyde in 1 percent solution has been atomized by handsprayers both within the cabin of the plane, and in the wheel-wells and other spaces of the plane opening exteriorly, but the irritating effect and moisture from this substance would appear to preclude its use. Hydrogen cyanide has been suggested and used occasionally in this and in other countries, but difficulty in assuring adequate treatment and prompt clearance of the ship and the difficulty of keeping it cleared of insects after fumigation until it can be loaded and taken off, obviously rule out the procedure. Hangars reserved for the treatment of planes as a whole by this or any other gaseous fumigant, would be impracticable and wasteful. These substances must be reserved for the unusual instances in which dramatic measures are required.

Mechanical cleansing of small planes with limited cabins for the removal of insect stowaways might be accomplished, but this is inconceivable in large planes with multiple sections, especially when unfinished on the interior as in the case of cargo and military planes. The removal of insects by forced ventilation is also not feasible in view of the numerous recesses, the dust and discomfort involved, the equipment required, and the temporary duration of the effect. Vibration of resting places, while of some lethal potentiality for fragile insects, has not been sufficiently tested to be relied upon.

Rotenone, effective against most insects, has been tested in planes, but has proved irritating to human skin. It might be usable in under-floor spaces and in cargo spaces, but is unlikely suitable for general use in cabins.

The recently introduced synthetic insecticide, para-dichloro-diphenyl-trichlorethane (Gesarol, DDT, etc.) has shown great promise in the control of certain insects, with the great advantage over other insecticides of a long residual effect, persistent for days or weeks after application, and the possibility of incorporation into paints or other finishes. It is distributed in aerosol, or in solvent or powder. Studies on its use for the disinsectization of aircraft, however, are insufficiently advanced to indicate more than future possibilities. Persistent effectiveness might permit treatment of a plane at the time of mechanical servicing at weekly to monthly intervals. Decomposition with the formation of hydrochloric acid, reported to occur at moderate temperatures in the presence

of catalytic impurities, if uncontrollable, might reduce its usefulness in aircraft.

Present reports indicate great variability in the persistent effect of DDT in planes but as far as experiments have gone, it appears the presence of upholstery increases the length of time of the killing effect. There is also indication that unsprayed cargo may defeat the effect of periodically spraying the interior surfaces of the plane as insects may rest on boxes and bags and not be killed. Furthermore, it requires several hours to kill insects with DDT when used as a residual spray.

Of present insecticides, the best are preparations of pyrethrins. These are effective against many insects including mosquitoes and flies, but some other forms, such as beetles, ants, ticks, and spiders are comparatively resistant. This deficiency is important from an agricultural viewpoint, and for effective insect control reinforcement or substitution must be sought. Increased effectiveness and economy have been achieved by the use of freon as a solvent, and for energizing the spray and atomizing of the pyrethrins, but difficulties of supply during the war have limited the use of both pyrethrins and freon. This bottleneck is being broken now.

The strengths used have been subject to compromise between these scarcities of material and acceptable effectiveness. It is to be noted that the product has been assayed chiefly against mosquitoes, which are among the most susceptible of all insects. Present sprays contain 0.4 percent pyrethrins in freon, with 8 percent oil of sesame seed as activator. There is some evidence that a reduction from 1.0 percent to 0.4 percent pyrethrins has been accompanied by reduction in practical effectiveness in field use.

Methods and times of disinsectization

Civilian and military planes differ in the character of their internal finish, the control of ventilation, draftiness, and the requirements of security concerning their movements. Personnel also differ, and all these differences are important in the matter of disinsectization.

Much discussion has concerned the disinsectization of structural spaces outside the cabin. In older aircraft, with wings and tail-assemblies readily accessible through fenestrations in their trailing edges, many insects collected in them, especially when small, unsanitized grassy fields were used. In most modern planes, however, the wings and stabilizers are of tightly compartmented structure with only small "equalizer" openings to the exterior. An insignificant amount of insect debris is now found in them. In some planes, much wing-space is accessible from the cabin, but this problem can be solved by directing the insecticidal spray into the opened space, or by supplying them with snap-on covers.

Outside structures of aircraft are occasionally sprayed with insecticide. It has been demonstrated that in very exceptional instances, insects may survive in advantageous recesses in the nose-wheel compartments of certain military planes. In critical routes, such as from West Africa to South America, such possibilities should be recognized, but in general, and especially in commercial planes, the turbulence of air within these spaces eliminates insect harborage, and the spraying of the outside of aircraft may be considered unnecessary.

Three periods are available for the disinsectization of aircraft: Before, during, and after flight. There are definite considerations making for the success or failure of each of these periods.

Spraying before flight

In spraying before flight, the process may be accomplished after full loading so that upon its completion the plane may take off immediately without re-exposure to infestation; or spraying may be done earlier, usually before loading. In some airways operations, planes arriving at an overnight stop are serviced, disinsectized, and closed; the passengers and cargo are loaded in the morning, and takeoff occurs at least several hours after treatment. More commonly, the baggage is loaded and spraying is accomplished within twenty to thirty minutes before departure. The longer the interval, the less effective must be the spray, and the greater the possibility of introduction of insects with loading of baggage or personnel after the effectiveness of the treatment has disappeared. To the knowledge of the Commission, persistent killing effects of pyrethrin sprays have been experimentally demonstrated only in still air in restricted spaces, and air currents dissipate lethal concentrations of the material in a short time. In fact, it is felt by some that residual effect should not be considered to outlast a visible cloud of spray, which will not be longer than two or three minutes.

If disinsectization before takeoff is to be effective and dependable, it must be performed immediately prior to departure and after full loading of all baggage, cargo, crew, and passengers on the one hand, and take-off on the other.

In spraying before takeoff, persons aboard the plane are protected against the chance bite of an insect enroute and a closer control of the procedure from the ground is permitted, which is of administrative advantage at times. Flight personnel can perform the act, so that there is an automatic supply of personnel regardless of the amount of traffic, and the opening of the plane to permit the exit of a ground-crewman can be eliminated. However, if spraying is done by a member of the ground crew, it is not considered necessary to spray a mist of insecticide into the opening during his exit to prevent the possible entrance of insects at that time. If a spray does not have that much residual effect, it is valueless anyway.

If done by a member of the aircrew, the act should be evidenced over the signature of the pilot in the Clearance Form and log of the aircraft; if by a member of the ground crew, a certificate should be given by the sprayer which should be recorded in the log and on the Clearance Form. At critical points, when requesting takeoff instructions, the pilot may be required to inform the control tower that disinsectization has been completed.

In any event, there is presupposed both ability and training of the personnel performing the spraying. Unsatisfactory personnel, resulting in unsatisfactory performance was most commonly observed by the Commission when the spraying was done by ground personnel from the medical corps. If this function is to be effective in the hands of ground crew, suitable personnel must be used with disinsectization as their chief interest, and with performance guaranteed by training, supervision, and

adequate inspection.

If aircrew are to be used, there is an assurance of intelligence, reliability, and interest in the operation of the aircraft, but indoctrination of such personnel in the purpose and technic of a consistent and intelligent policy with regard to spraying will be no less necessary. The ship's personnel must understand that, spraying, like every other phase of their operation, is subject to unannounced inspection, whether by canvassing of passengers, by inspectors, or by any other means.

In spraying before take-off, a short period of time may be lost, and this is occasionally said to prevent the making of a "deadline", but such occasions need not occur if careful timing is used, as spraying can be done during the warm-up of the engines.

The responsibility for pre-flight spraying must be distinguished from its performance and may be vested in the flight personnel, the ground-crew of the carrier, or in public servants. In commercial operations, in contrast to military, it would be most desirable that responsibility reside in the local Public Health or agricultural authorities at the port of departure. It is questionable, however, that the statutory definition of their responsibilities would generally permit this. Otherwise, it should remain with the carrier to permit exercise of control in the event of remissness.

Consideration has been given to automatic spraying devices as permanent installations in planes. Designs suggested for these have usually provided for a master cylinder for the insecticide and distribution lines leading to the several compartments of the plane. This mechanism could perhaps be actuated automatically on the raising or lowering of the wheels of the plane. None of the several conceptions of this idea has as yet been given critical trial.

Spraying during flight

Spraying in flight presents the advantage of utilizing time which is not at the expense of other operations. The criticism that all flight personnel are too occupied with flight duties to perform this function is hardly supportable, for rarely do flight conditions require the attention of all the crew all the time. Even in small craft with only the pilot, there will, with rarest exceptions, be ample opportunity for spraying in flight even on short spans.

Some discomfort to passengers and crew will exist at any time spraying is done, and is admittedly a matter of occasional practical consequence. Relaxation, coolness, and comfort are, however, usually greatest aloft, and spraying is probably least objectionable at that time. Air-sickness would make any odor obnoxious, and has commonly been confused with the effect of the spray; such odors can most rapidly be eliminated in flight, after an effective holding time, due to the rapid ventilation available. Tobacco smoke is more objectionable to many persons.

Provision may have to be made for alteration of practice in the event of true idiosyncrasy to the spray, although wide inquiry has revealed only a single alleged case of allergic bronchitis. The coughing, rhinitis, and mild conjunctivitis more commonly encountered are inconsequential from the standpoint of danger, and may be largely eliminated by refinement of the pyrethrins and by the use of freon sprays.

One limitation of spraying in flight is the difficulty in maintaining an effective concentration of insecticide due to air-currents, which restricts such spraying to those planes in which ventilation can be completely controlled. The average military and commercial cargo aircraft are thus unsatisfactory for spraying in air. Another objection is the difficulty of access to some compartments in certain planes when in flight; these spaces would have to be sprayed before flight or on landing.

The difficulty of supervising the spraying in air, from an administrative standpoint, can in part be overcome by indoctrination of flight crews in the reasons for the procedure, and by refusal to approve such spraying in the case of carriers in which spot-inspection of the planes, questioning of passengers, and observations by inspectors show that spraying has been omitted or poorly carried out. Disinsectization during the flight should be recorded in the log of the plane and on the Clearance Form.

Spraying on Landing

Disinsectization after landing should take place before the plane is opened if it is to be beyond criticism, and the plane should, of course, have landed with all openings closed, and kept closed until disinsectization has been accomplished. If spraying is to be carried out by ground personnel, a mist of insecticide should be directed into the door or hatch as it is opened, in spite of the small likelihood of the escape of insects at the time the sprayer enters the plane. It is doubtful that the aerosol bomb would furnish a sufficient volume of insecticide with sufficient force to be effective and an air pressure spray would have to be used.

Spraying on landing is advantageous in that it can be supervised by officials of the country primarily concerned, whether the actual spraying be by them, by flight or ground-crew of the carrier, or by employees of the airfield. If the spraying is not to be done by public personnel, it should be performed by the carrier, for the reasons discussed in connection with spraying before take-off. In any event, the disinsectization should be certified in the flight-log for the inspection of interested officials at any time.

Objections to spraying after landing include waiting in a hot plane after a tiresome or uncomfortable or at times hazardous, trip for several extra minutes, a consideration more important in fact than upon paper. The frequent suspension of spraying in favor of prominent personnel on the plane, including high-ranking military officers, is another point difficult to control, which lowers the zeal of all those concerned with disinsectization.

The landing of aircraft with ports and windows open should be eliminated since the flow of air through them is generally outward and insects might thus escape. Many pilots habitually open cockpit windows upon descent, but only rarely if ever according to aeronautical authorities, is this necessary for safe operation of the airplane. After landing, the roof-hatches of some aircraft are opened to permit observation of the wing-tips during taxiing. This is unavoidable, and insects could perhaps escape unless the adjacent compartments were previously sprayed. The same problem and solution pertain to hydroplanes where hatches must be

opened to permit securing of the buoy-line.

Responsibility of the carrier

Any of the three times for spraying can be considered satisfactory if its limitations are understood. In the absence of other practical arrangements, it is the recommendation of the Commission that disinsectization should be the function and responsibility of the carrier, which is in the best position to determine which time for spraying is most adaptable to its operations.

The carrier should be required to assure the proper public official on demand that disinsectization has been performed in accordance with the approved technic, and has been noted in the flight-log and on the Clearance Form. It is to be emphasized that the carrier can properly be required only to carry out the prescribed procedure, and its obligation should be satisfied by demonstration of that compliance. It should not be held responsible for accomplishing an end for which the technic prescribed is not competent. In this connection, the Brazilian demand that no live arthropod be brought in by plane is considered excessive, since the prescribed methods of disinsectization are not effective against all arthropods, and the protest of the Brazilian government against the chance importation of a tick by Pan American Airways thus seems unjustifiable.

Nevertheless, each demonstrated non-compliance with regulations should carry an increasing monetary penalty, and perhaps ultimate suspension of operating franchise in the country.

Aircraft passengers' reaction to spray

Personal dislike of spraying by passengers has caused some extremely unpleasant and difficult situations. Stewards have been threatened with blows, and complaints have been sent by irate passengers to the managers of airlines. This indicates the failure of passengers to appreciate the problem, and any program of disinsectization should include education of the traveling public, in both commercial and military aircraft. Tracts which are succinct, humorous, and illustrated to be distributed for reading during flight, or handed out by the air-port hostesses, would do much to dispel objection to spraying, which to a considerable extent has become habitual. Properly worded, these pamphlets would even result in the demand by passengers that a thorough disinsectization be accomplished.

Emphasis on single spraying

The details of spraying are ordinarily stated in terms of seconds of spray with standard materials and equipment for one thousand cubic feet of space. While this is acceptable, it would be preferable to specify the actual weight of pyrethrins to be dispersed.

Even though the cubic content of most planes is determinable, and in the case of military planes has been stated on spraying instructions, proper timing was rarely encountered by the Commission. Most sprayers did not have a watch and reliance was placed upon raising a "moderate

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mist." This method though defective might be made acceptable through training.

Whatever time or method of spraying is elected, all effort should be focused on a single spraying for each span of flight. A single well-performed disinsectization done under the conditions outlined above is considered more protective than several superficially carried out. Some believe that in flight from one great natural zone to another, a single spraying of the plane should not be relied upon, and under such circumstances, it has been proposed that about one-half hour before departure the plane be given a particularly thorough treatment, then loaded and resprayed lightly just before take-off. The objection to this procedure is a waste of effort and spray, and there is actually no very good way to predict the departure of planes to within a few minutes. Furthermore, insects may enter planes during the loading, and unless the second spraying were heavy enough, they might not be killed; if the spray were heavy enough, no purpose is served by the first treatment except that of satisfying public opinion.

The question of the advisability of disinsectization in each span of flight requires a clear concept of just what it is calculated to intercept in those areas. No disinsectization would be indicated when the same insects are present at both ends of a span. Zoning of air-routes in terms of insects is desirable, but such maps are not at this time available in consolidated form to reveal distribution of insects. Furthermore, since disinsectization cannot be reduced to terms of one or two insects it is doubtful that such maps would be found to permit clear-cut indications for spraying.

In significant spans, such as to the Hawaiian Islands from any other place, the indication for spraying is clear enough, but in routes such as from South America or Panama to the United States it would appear necessary to spray only when demanded by health or agricultural agencies on the basis of carefully evaluated reasons. Rarely would this require the multiple disinsectization carried out at present on some aircraft.

Searches for insects in planes arriving from abroad has been very useful in demonstrating the number and variety of insects carried, but further demonstration of the point would appear unnecessary. The occasional sampling of planes for the presence of live insects should be continued to gauge the adequacy of spraying, particularly after each modification of technic. Insect surveys are necessary around airfields and anchorages, probably on a seasonable basis, to detect any implantations of insects that might have occurred despite preventive measures. Routine searching of planes at ports of arrival should, however, be discontinued.

Stowaway animals

Stowaway rodents have been suggested as important in air-travel, considering both the animal and the vermin which they may harbour, and particular attention was devoted to this subject by the Commission. Rats have been carried on planes, and probably will be more frequently transported as air-freight becomes common, but the size of the problem is dwarfed by the facts. Several years ago at Brisbane, Australia, a rat-nest was found in the wing of a plane which had been idle in India,

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and two rats were recently reported on a plane before landing at the same port, but could not be found on later search. Other instances reported by the quarantine officer at Brisbane proved to refer to the empty rat nest. At Kelley Field, Texas, two instances were observed of rats in planes from Central America, and at other times rats have been reported in baggage, but the information has usually been second or more handed, obviously uncertain and exaggerated.

A report of several rats on a plane at Natal proved to refer to the discovery of rat-droppings in the cabin. In Honolulu in the fiscal year 1942-1943, six fumigations of planes were done by the U.S. Public Health Service, two of which were for rats; eight animals were reported to have been recovered.

It must be recognized that cargo may harbour rats, but the magnitude of the problem at this time is unimpressive. Moreover, no plane will probably ever harbour as many rats as have been considered reasonably safe on surface vessels. Small danger may exist in some instances in which special precautions might be advisable, such as in the case of two rats observed on a plane arriving in Montreal from the Azores Islands where plague existed at that time; unfortunately the rats were not recovered on landing.

Snakes were reported to the Commission to have been seen in planes on three occasions, but this is negligible in comparison with the occasional introduction of snakes with stalks of bananas, and even this has no quarantine significance.

Disinsectization of marine and terrestrial conveyances

The disinsectization of vessels and land conveyances must not be overlooked. In the former, chief interest has ordinarily been focused on cargo which might harbour larval forms of insects, and extensive barriers have been set up by the Bureau of Entomology and Plant Quarantine of the U.S. Department of Agriculture. The conveyance, by sanitation and disinsectization, can be eliminated as a transmitter of stowaway insects, but this is much less important than the cargo problem, and will be a great deal more difficult to accomplish in ships, trains, and trucks than in aircraft. In vessels, the more important task, despite modern construction, is the prevention of breeding of insects through alert ship sanitation, with particular attention to refuse and standing rain water. Spraying should be accomplished in accord with the local risk, but will generally be unnecessary.

Disinsectization of military aircraft

Military personnel, although on the same airfield, may operate under different commands and conditions. Furthermore, there is a point of view in military aviation which does not ordinarily include insects, or the economic factors vital to the operation of commercial airlines.

Early in the spraying of United States Army aircraft, disinsectization was held to be a responsibility and function of the Medical Department, but the administrative difficulties of this arrangement required change to the present designation of the duty as a command responsibility, with medical instruction, supervision, and inspection. The Commission is

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of the opinion that this was a necessary and desirable change.

It must be realized, however, that the publication of a military directive does not per se assure its accomplishment, and that continuous supervision is necessary to establish and continue its provisions upon an effective level. Inspection of disinsectization should, therefore, be included in Sanitary Reports, and in the cognizance of Medical Inspectors and Inspectors General.

The loose fit of canopies and hatches in military aircraft makes it impossible to maintain effective concentrations of insecticide during flight, so that spraying should be limited to periods before take-off or after landing. In general, it is believed that all effort should be concentrated on spraying immediately before take-off.

In some instances, this may be supplemented by spraying upon arrival in compliance with local regulations, particularly when this is accomplished by public personnel as in Brazil. Such re-treatment is not thought to be indicated upon arrival of military planes in the United States if the procedure has been faithfully performed at the preceding designated take-off.

Disinsectization should be indicated in the form of a note rather than a mere initial, and in the Clearance Form (AAF Form No. 23 or BuAer 423) in preference to the AAF Form 1. As the clearance is given to the Operations Office at the port of arrival, it becomes a matter of record, and is renewed upon each takeoff, whereas Forms I and Ia remain with the airplane until it reaches its home station, where it comes to the attention of Maintenance rather than Operations.

Disinsectization should be done by flight personnel, thus assuring an automatic supply in the event of the take-off of more planes than can be covered by any feasible ground crew. This should not preclude the performance of the spraying by ground personnel of the Medical Department at certain critical bases such as the fields in Africa used for take-off to Brazil.

The substitution of this or any other elective or additional measures at such points should, however, be approved by higher administration, and not be a matter of local option alone. In the event of spraying by Medical Department personnel due to the critical nature of the function, the pilot should be given a certificate of its accomplishment by the person performing the disinsectization. The receipt of this form can be noted on the Clearance Form, and can be presented to the Operations Officer at the field of arrival. The supervision of disinsectization of aircraft should be by qualified entomologists, at least at critical points, and at all other points where their services can be obtained. These details of the disinsectization of military aircraft are included in the revision of AAF Regulations 61-3, suggested by the Commission. (App. Item 20).

It is not considered that existing military regulations governing disinsectization need essential change, but rather enforcement, with selection, supervision, training, and stabilization of personnel involved. It should be emphasized again that education of flight personnel and military passengers in all grades is as essential for success in military as in civilian operations.

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ADMINISTRATION OF QUARANTINE

Analysis of this report reveals a number of changes suggested in the present execution of quarantine in civil and in military procedure.

Flexibility of regulations

Rigid and technical interpretation of regulations may not permit sufficient latitude of judgment to quarantine officers, with resulting inconsistent practice as in one place where there was lack of insect control in land-planes because regulations in the country specified hydroplanes only. In other instances it may be questioned whether lack of specific regulations or other reasons was the more important, as in the omission in some places of the quarantine processing of planes from the Amazon Valley to Coastal cities. To be effective, quarantine must be flexible, and its application left to the intelligent judgment of an officer, concerned less with the legal phraseology of regulations than with the essential purpose of quarantine.

Treaty provisions

Perhaps because a carrier could virtually be excluded from trade by excessive quarantine restrictions, international quarantine treaties specify in general the maximal control to be permitted rather than the minimal, and many Governments consider their provisions advisory rather than binding. The result is that such treaties commonly provide no effective persuasion toward their goal, and the suspension of traffic for which they provide is not invoked. Probably few aerodromes in the world are anti-amaryl except by the fortune of their location in a country free from yellow fever, or in an area naturally restrictive to mosquito breeding; yet international air traffic has been unrestricted, despite the provisions of the International Sanitary Code of 1933. Another factor is that, although American countries are not signatory to the International Sanitary Code for Aerial Navigation, 1933, except the United States and Bolivia, no other agreement has adopted similar advisory standards in this hemisphere.

Lack of correlation

Quarantine regulations have on occasions led to impracticable provisions as:

- a. Requiring a quarantine officer to certify that passengers from an infected area are "free of cholera" when the most any examination could do would be to fail to demonstrate cholera;
- b. Requiring train crews to observe the state of health of passengers en route as a basis for quarantine at land frontiers;
- c. Making a physician responsible for quarantine when he has insufficient time for his regular duties, or is

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- located at too great a distance from the port of entry.
- d. Obligating a carrier to refund the passage and to repatriate an ineligible traveler who was granted passage on the basis of a fraudulent health certificate.
- e. Issuing certain military directives, for the execution of which, provision is not made, and which are inconsistent with general policy.

It was acknowledged at the onset of the war that the United States Public Health Service was unable to carry out quarantine in all military traffic, and that as a result part of the function must be performed by military medical officers. To a limited extent, medical officers of the Army and of the Navy were appointed Acting Assistant Surgeons in the United States Public Health Service for the purpose of quarantine enforcement, but complete use was not made of this mechanism, and the implications and correlations of such appointments have not been completely worked out. Under this arrangement, functions hitherto performed by officers of the United States Public Health Service were assigned to military officers directly, by delegation of authority from the United States Public Health Service.

This arrangement was handicapped by lack of clear definition of the authority, and of the relationship of the United States Public Health Service officer to the military officer appointed Acting Assistant Surgeon of the United States Public Health Service. The military officer was compelled to observe censorship regarding shipping and movement of personnel, while United States Public Health Service officers at times demanded confidential information in order to be assured the delegated function was being executed. In some instances, they insisted upon unlimited inspection, and upon completed standard forms of the United States Public Health Service. These forms cannot be forwarded under military rules of security, for, in addition to the non-military status of the Public Health Service that Service has not adopted any system of classification of information.

Objection was, therefore, offered to compliance with such requests of the United States Public Health Service, and local officers of that Service were at times embarrassed by procedures necessary to gain entrance to military reservations. To avoid this confusion, it is suggested that proper officials in the three Services in Washington effect a correlation of the duties and responsibilities of their respective officers in the field, as outlined later in this report.

The status of Acting Assistant Surgeon in the United States Public Health Service was granted, at first by name and later by position, to the senior medical officers of stations for which the appointment was asked through channels, but the Commission encountered no specific definition and delegation of such authority by Post Surgeons to those actually meeting the planes or ships. The work could be improved if Post Surgeons would formally delegate their authority to appropriate personnel and require periodic reports, or if the authority were in the first place granted directly to the boarding officer, through channels.

The situation to date in the case of the United States is somewhat between the extremes represented by the complete delegation of all quarantine authority and responsibility to the Allied military forces by the New Zealand Parliament, and the complete reservation of such functions

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to the Commonwealth quarantine service in Australia.

The Commission believes that regulations of the Army and Navy should specifically implement the quarantine regulations of the United States Public Health Service, and assure their satisfactory execution by expansion of the appointment system described above. Inter-service correlation should be accomplished by consultation between the three Services, the quarantine officers of all Services being informed fully of their relationships and obligations.

Inadequate codes

In some countries, inadequacy of quarantine codes may result from failure or tardiness of modernization. In Costa Rica, there was submitted to the Legislature only in 1943, a revision of quarantine statutes in accord with the Pan American Sanitary Code of 1924, and no aerial codes have been formally adopted in Haiti, Dominican Republic, Honduras, El Salvador, and many other countries. The International Code for Aerial Navigation is based primarily upon protection against yellow fever and contains no reference to implantation of new vectors.

There was a period of time following the attack on Pearl Harbor, when the United States Public Health Service was relieved by martial law of the responsibility for disinsectization of ships and air-craft, before the Navy instituted its program. No clear cut provisions were established for the transfer of such duties.

Responsibility for quarantine and disinsectization, provided by Army Air Force Regulation 61-3, has been executed chiefly by the Air Transport Command, which has on the whole set-up an increasingly effective system. There have been, however, some inconsistencies in practice, as for example when the Braniff Airways, operating under Air Transport Command, performed disinsectization of planes arriving in Brownsville, Texas, but not into the Canal Zone.

Some other sections of the Air Forces are not generally organized to carry out disinsectization and quarantine. This has resulted in uncertainty as to the performance of disinsectization of planes assigned to those sections when landing on fields at which the major traffic and responsibility for quarantine belonged to the Air Transport Command. Several instances of such incompletely designated duty were noted by the Commission.

In the United States, the Public Health Service met military planes at La Guardia Airfield in New York City, but not those landing at Roosevelt Field, Mitchel Field and Newark Airport. At San Francisco, the Public Health Service was unaware that Army air traffic at times entered Fairfield Airport as well as Hamilton Field, and that Navy air traffic entered Alameda Air Base as well as Treasure Island.

In order to designate new airports of entry, an Interdepartmental Committee on Authorized Airports has been established. If all proposed new airports of entry were cleared by this Committee, the United States Public Health Service would be kept informed when the Army or Navy begin the use of a new port and could then establish suitable quarantine inspection at it. This would avoid situations as noted in the previous paragraph.

In some military areas, adequate spraying of planes was impeded by

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the removal of pyrethrin bombs by crews for use in quarters, and in commercial airways in the Caribbean area spraying was noted on occasion to have been confined to the toilet compartment of the plane. In one place, an editorial error from a two minute to a twenty minute holding time after spraying in landed planes led to careless performance of the entire provision through its impracticability. Adequate supervision of quarantine would have detected such irregularities, but inspection was not frequently encountered by the Commission. This has resulted in unwarranted assumption and assurance that regulations were being executed.

Transportation of animals

Military carriers, particularly aircraft, have been known to import animals into the United States despite civil regulations of the United States Public Health Service, of the Bureau of Animal Industry in the United States Department of Agriculture, and of the Fish and Wildlife Service in the Department of the Interior. This has resulted in avoidable destruction of animal life at ports of entry. Importation has, also, occurred into Australia, New Zealand and the Territory of Hawaii, where laws are even more restrictive and where rabies does not now exist.

Army and Navy Airforce restrictions cover fruit and plant quarantine, but are not clearly defined in regard to animals. A firm and definite stand in the matter would eliminate a vexation to all concerned and should be based upon the possibilities of hydatid disease in dogs, tularemia in rodents, yellow fever in monkeys, and rabies in several animals.

An advance has been made by War Department Memo. No. W850-44, 5 April 1944, which calls attention to the civil restrictions on importation of wild animals and some animal products into the United States, its Territories and possessions, but pets are not covered, and will probably continue to be transported by air, especially abroad. Pets and mascots were forbidden in Army transports and vessels, wholly allocated to the War Department, in AR 55-485-C2 of 7 January 1944.

Divided effort

Dissociation of effort has led to duplication of personnel employed in spray and quarantine functions. At one airfield, each of three groups of planes maintained separate spray crews and different methods of communications with the control tower. Air Transport Command planes at Brownsville were met for quarantine and disinsectization by personnel of both the Air Transport Command and the United States Public Health Service, and at Dallas, two entomologists, one of the United States Public Health Service and the other of the United States Department of Agriculture, searched the planes for insects of interest to their respective services; either could have functioned for the other.

At La Guardia Airfield, the officer of the United States Public Health Service stood by watching the line of passengers from a transatlantic Air Transport Command plane as they filed through the hangar on their way to the Army Airport of Debarkation where each was to be inspected later. Such duplication of effort taxes the interest and sincerity of personnel and destroys the effectiveness of the procedure.

Frequent changes of personnel performing or responsible for quarantine

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prolongs unfamiliarity and inefficiency, and should be minimized. The selection of intelligent personnel interested in the problem and capable of judgment should be axiomatic. Military quarantine officers frequently chafe at their work, or are uninterested in it, and it is recognized that they have been primarily interested in medical liaison with incoming personnel and with the sanitary inspection of the conveyances; quarantine has as a rule been incidental.

SUGGESTED ORGANIZATION

It is clear that primary responsibility for quarantine in the United States, its Territories and possessions should remain with the United States Public Health Service in accordance with the obvious intent of Congress in the Act of February 15, 1893. Although it might be possible to designate military functions as "local" within the meaning of that legislation, and legally usurp the function of the Public Health Service, it is considered that unitary responsibility should be maintained.

Officers in charge of quarantine in the Armed Services - Liaison

It is particularly recommended that the Army and Navy each assign a medical officer the duty of Officer in charge of quarantine for his respective service. These two officers should act as liaison officers to the United States Public Health Service and, together with the Chief of the Division of Foreign Quarantine of the Bureau of Medical Services, serve as an informal interdepartmental quarantine board for the duration of its usefulness. They should confer with one another relative to the application of policy, the arbitration of differences, and the solution of interservice questions arising in connection with quarantine. The duties of the individual Officers in charge of quarantine should include the administration and inspection of quarantine practice within their respective services and submission of appropriate recommendations.

The Navy officer should be directly responsible to the Surgeon General of the Navy and in close liaison with the Medical Inspectors and Section of Preventive Medicine. The Army officer should be in such position in the War Department as to permit close and effective liaison with the offices of the Surgeon General, of the Air Surgeon, of the Inspector General, and with Theater and Air Force Commanders and their Surgeons. The appointments of these officers should be made by letter from the respective Secretary, and they should be designated "Consultants" by the United States Public Health Service, without additional compensation.

Spheres of responsibility

The determination of which Service is to accomplish quarantine functions in any given traffic should rest upon an evaluation of the local problem by the mutual exchange of opinions of the liaison officers, and by consultation with the governmental agencies or departments involved. In general, commercial conveyances and their passengers should be processed by Public Health Service personnel, and conveyances owned by the Army and Navy should be processed by the military quarantine officers, except when determined that greater efficiency may be obtained

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and expediency served by other personnel. The handling of other conveyances should be subject to mutually satisfactory adjustment, particularly recognizing the principle that ships or planes entering Army or Navy yards, harbours, docks, slips, or airports should be processed by military quarantine personnel, and if entering non-military areas should be processed by the Public Health Service. This arrangement should pertain to military carriers of foreign as well as United States registry.

It is recognized that some situations will require decision in the interest of greatest efficiency, economy, expediency, and security, and that these goals may require that any Service accomplish all quarantine at a given port, or that in view of volume of traffic, spread of areas, or other legitimate reason, two or all three services might operate at one port. No plan for these purposes should operate to establish a duplication of personnel or equipment. The informal board, after such considerations as have been outlined, should recommend to the several Services a plan for handling the quarantine at each port and aerodrome. These general provisions should continue for the duration of the war, and for as long thereafter as is mutually desirable.

The above plan should be accomplished as at present by designation of military officers Acting Assistant Surgeons in the United States Public Health Service, without additional compensation, for the specific function of quarantine, either as full or additional duty depending upon the circumstances.

This designation should apply to the office of medical boarding officer rather than to specific individuals or to the Port Surgeon, so that the position when assigned and reassigned carries the requisite duty and authority. If advisable to make the primary delegation to the Surgeon of a port or airfield, he should formally transmit the status to the officer immediately in charge of the work, in accordance with the terms of delegation by the United States Public Health Service. Several specific functions such as actual disinsectization and ship inspection could be carried out by non-medical but trained personnel under the supervision of the designated officer.

Any case of quarantinable disease, and the situation resulting therefrom, should be the direct concern of the United States Public Health Service, and appropriate disposition should be effected in accordance with consultation between the military quarantine officer and the nearest United States Public Health Service Quarantine Officer.

The high level of performance of these delegated duties should be assured by reference to them in regular Sanitary Reports, and to their observance by Medical Inspectors and by Inspectors General. Pertinent reports should come to the attention of the Officer in charge of quarantine of the Navy, or of the Army, respectively, through appropriate channels. The military Officers in charge of quarantine should also conduct inspections and observations whenever indicated. Quarantine procedures should be subject to inspection by officers of the United States Public Health Service, for assurance of correct and efficient performance.

Periodic reports by the local military quarantine officer should be submitted to the United States Public Health Service through local or regional offices of that Service, including unclassified abstracts of the bills of health, manifests, and ship inspection reports. (See App. Item 19 for a suggested suitable report form). Full reports should be forwarded

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through military channels to the respective Officer in charge of quarantine.

The local or regional regular officer of the United States Public Health Service, as well as the Officer in charge of quarantine of the Army or Navy, as the case may be, should also serve in an advisory and consultative capacity to the local military quarantine officer.

The quarantine system thus outlined would facilitate the extension or the withdrawal of military participation in quarantine, either locally or generally, as might be expedient. Extension of an established system of this type would undoubtedly be welcomed by many governments in foreign areas, and would assure continuity of purpose, plan, and effectiveness within the Armed Forces.

While under such circumstances, the basic laws of a territory or country would of necessity influence local military practice, unless it were a conquered area, the plans suggested and demonstrated by the Military Quarantine Officer might assure closer rapprochement in later international councils regarding quarantine.

In the event of military government under martial law in the United States, Allied, or conquered territory, the same system could be adopted with minimal modification. It is also possible that in such a quarantine system trained and approved military personnel might receive endorsement by the United States Department of Agriculture for the enforcement of plant quarantine. Specific directions should provide for the inspection of personal baggage of any military personnel in this connection.

As it is not likely that many quarantine positions in the Armed Forces would require full time, personnel assigned to them would usually be available for additional duty. Thus, the personnel involved in this scheme is enlarged over the present only by the Officers in charge of quarantine of the Army and Navy, and after the establishment of the system they, too, might be available for additional duty. Included in the functions of the respective Officer in charge of quarantine should be the adoption of suitable forms and instructive literature affording maximal simplification.

Selection and training of personnel

Effective selection of personnel for assignment as local military officers must depend upon aptitude, and must be followed by instruction in technic and in pertinent laws and regulations. A course of training for this purpose initiated by the Navy at Pearl Harbor was effective in this connection, and might be duplicated if thought necessary. It is considered, however, that pamphlet guides, supervision by the respective Officer in charge of quarantine, and consultation with local officers of the Public Health Service, the United States Diplomatic Corps, and the personnel of the United States Department of Agriculture, would fit personnel for their tasks.

The possible role of these officers abroad in granting port documents, including Bills of Health, may still further increase their value and usefulness in addition to contributing to the security and facility of marine and air traffic in those ports.

Administrators of quarantine must also recognize the necessity for education of the general public, and for the instruction and careful

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supervision of carrier personnel in procedures which constitute feasible and effective quarantine. All groups should expect intelligent quarantine and their expectations will greatly facilitate its accomplishment.

It is essential that current adaptation and revision of quarantine practice be continued in accordance with additional knowledge, increased sanitation, and more dependable epidemiological intelligence. Regular conferences of quarantine authorities and officials to this end are suggested.

PREVENTION OF QUARANTINABLE AND EXOTIC DISEASES

IN MILITARY FORCES ABROAD

By the terms of reference, the Commission was charged with the examination of measures used to protect our troops, wherever they might be situated, from quarantinable and exotic diseases. The Commission made painstaking inquiry into the methods and procedures in use in most areas in which the troops are now located, and observed at first hand the application of safeguards in this respect.

No purpose would be served by the enumeration of all observations made. Suffice it to say, it is the studied opinion of the Commission that the numerous directives issued by the Chief of the Bureau of Medicine and Surgery of the Navy, and by the Surgeon General of the Army, with the counsel and suggestions of their respective Divisions of Preventive Medicine, form a sufficient code of regulations which, if carried out, will afford the full measure of protection now known to medical science.

Because of control afforded by military discipline, it has been possible so to immunize American troops and so to protect their general health, that it does not appear anything approaching an epidemic of quarantinable or exotic diseases need be feared, except under certain conditions of actual combat in which malaria, scrub-typhus, and dengue may be expected in spite of all efforts to the contrary.

Since the early stages of the war, medical logistics have greatly improved and an appreciation of preventive medicine has spread throughout the various commands. In addition, the theaters of operation have moved away from some of the more dangerous areas, and although others may be entered in the future, organization has been so perfected that there is little likelihood of disastrous consequence.

The Commission has taken cognizance of the recommendations of the Interservice Committee for the control of Exotic Diseases and subscribes to their recommendations. It has no additional recommendations to make concerning these particular problems except to emphasize the importance of a system which will assure prompt distribution of medical intelligence concerning exotic diseases, and the indoctrination of Commanding officers, medical officers, and all other Army and Navy personnel, first in the basic principles of preventive medicine, and second in specific procedures to be followed for personal protection.

In Part III will be found suggestions for correlating the various Army, Navy and United States Public Health Service regulations, so as to make quarantine procedures consistent throughout the Services.

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INTERDEPARTMENTAL QUARANTINE COMMISSION

Final Report - Part II

10 June 1944

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INTRODUCTION

This part of the Final Report is a summary of the essential provisions of Part I, which the Commission believes would accomplish adequate modernization of quarantine procedures, and integration of civil and military interests.

In view of the magnitude of national military endeavor, it is apparent that for the duration of the emergency, quarantine procedures related to military movements will, for many reasons, have to be performed at times by military personnel. Nevertheless, in the United States, national quarantine is a function of the United States Public Health Service. It would appear that this apparent but not real conflict in interests, could be solved by the creation of an informal quarantine board, whose members would act as liaison officers to the several services. These officers would be the same persons as those designated as Officers in charge of quarantine in the armed services and the Chief of the Division of Foreign Quarantine, United States Public Health Service. They would be charged with the supervision of quarantine procedures within their respective services, and with mutual correlation, integration, and consultation as problems arise, to the end of the greatest efficiency in these functions. Quarantine in the Army and Navy should be consistent with regulations of the United States Public Health Service in so far as compatible with military efforts.

For purposes of clarity, this Part is divided into the following four sections: I. Quarantine with reference to international considerations; II. Quarantine with reference to civilians and commercial planes, entering the United States; III. Quarantine with reference to interstate traffic; and IV. Quarantine with reference to the United States Military Services.

I. QUARANTINE WITH REFERENCE TO INTERNATIONAL CONSIDERATIONS

It is desirable that following the present conflict, a convention be proposed by the United States to consider and agree on international quarantine procedure, in the light of present knowledge and with appropriate reference to air travel. The Interdepartmental Quarantine Commission, after discussion with numerous public health officials, is convinced such a proposal will meet with favor.

The basic quarantine provisions adopted at such a convention should include the following:

- a. A system of weekly radio notification by public health officials to a few central stations (e.g., Singapore, Alexandria, Moscow, Balboa, and Geneva) of the current situation relative to quarantinable disease at ports and places involved in international traffic.
- b. A system of re-broadcasting a summary of these reports to those concerned.
- c. A system, making use of regular air-traffic communications for the immediate reporting of sudden outbreaks of dangerous diseases in order to make the information

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- available for use in air travel.
- d. Abandonment of bills of health.*
 - e. The use of radio or signal pratique under specified but liberal conditions.
 - f. Routine quarantine functions, although under the direction of medical officers should be carried out by non-medical personnel. However, such personnel should act only within specified limits and should be obliged to consult a medical officer in any exceptional situation.
 - g. The program found so successful in the United States of ratproofing ships by "building rats out" of them, should be extended and should include military ships. These ships should receive special consideration in all ports to encourage the wide adoption of this practice.
 - h. Passengers in international traffic should be required to have in their possession an International Travel Log, showing their whereabouts for the past 14 days, and their status in reference to immunizations.
 - i. International passengers should have proof of valid vaccination within designated intervals against smallpox; and against yellow-fever and/or cholera if the person has been in areas in which these diseases occur; and/or typhus if typhus in epidemic form has been present in an area visited by him within 12 days. Failing this certification, passengers disembarking should be placed either in detention under observation quarantine for a suitable length of time or under compulsory surveillance, whichever is indicated. If the passenger has been traveling a sufficient length of time to exceed the recognized time limits of incubation of the disease in question, he may be considered to have satisfied quarantine requirements.
 - j. Ports should be maintained at certain sanitary standards with special reference to rats and insect vectors, and nations should obligate themselves in this respect. Especial attention should be given the sanitation of airports, and efforts made to prevent the breeding of disease vectors for as great a distance around the port as is practicable.
 - k. Carriers should be obligated to take effectual measures to prevent the embarkation in international travel of persons showing symptoms of quarantinable

*On occasions, bills of health have been used to control traffic when sanitation was not fundamentally involved. This use of the document, while fortuitous, is objectionable on the grounds of its invalidation as an implement of health.

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diseases, and to prevent the transmission of disease vectors.

- l. Arrangements should be continued for medical examination of immigrants and for their rejection on the basis of medical examinations. Those immigrants intending to remain as residents should be thoroughly examined; temporary visitors should be allowed entrance on the basis of ordinary quarantine regulations without, as a rule, undergoing physical examination.
- m. When conveyances arrive at ports of entry from ports which are considered infected, or when passengers have been exposed to quarantinable diseases on the conveyances en route, arrangements should be made to inspect and to detain the passengers or to follow them under surveillance in accordance with agreed basic procedures. In general, if an approved physician is aboard a conveyance, his statements concerning the ports of departure or call, the conveyance, and the crew and passengers, should be taken into consideration in determining quarantine procedures.
- n. Periodic inspection for rats, and fumigation against them, should be provided; valid deratization certificates should be required and accepted.
- o. Special provisions should be made to assure the proper disinsectization of aircraft which arrive in a country from another whenever it is believed the aircraft may transmit noxious insects or disease-bearing vectors.
- p. All animals transported by any method should be subject to regulations designed to prevent their carrying diseases into a country.
- q. Special regulations governing pilgrimages should be re-examined, adopted, and enforced.

II. QUARANTINE WITH REFERENCE TO CIVILIANS AND COMMERCIAL PLANES

ENTERING THE UNITED STATES

In general, all persons arriving with, suspected of, or exposed to quarantinable diseases, should be cared for in United States Marine, federal, state, county, municipal, or approved private hospitals, except that so long as well, persons may be housed in other suitable buildings, or followed under surveillance if warranted.

All persons not complying with requirements governing vaccinations should be vaccinated and followed under surveillance or detained under observation for a prescribed period of time.

Leprosy should be deleted from the quarantinable diseases, but continued as a matter of cognizance of immigration officers and local health authorities.

When routine inspection of passengers and crew is indicated, it may

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be performed by nurses, or other suitable personnel, and inspection of conveyances by trained sanitary inspectors. Physicians should act as consultants.

The disinsectization of aircraft and of vessels, where deemed necessary, should be a function of the Department of Agriculture in close collaboration with the United States Public Health Service. If this is impracticable, the function should remain with the latter.

A plane should be considered at this time to have been satisfactorily treated if the equivalent of 0.012 grams of pyrethrins in freon with oil of sesame has been discharged per 1000 cubic feet provided it is thoroughly distributed, and exposure is continued for at least 1 minute. Present investigations suggest some improvement may be anticipated in this procedure. The dosing may have taken place just before flight, during flight in regular commercial passenger planes, or upon landing before the discharge of passengers or crew. Certification by a person, approved by the United States Public Health Service, should be accepted as evidence that the process has been carried out. Planes should, except when specifically exempted, undergo disinsectization before or during flight, or upon landing at any United States port if from any other port separated by ocean or sea, or if from areas South of middle Mexico.

III. QUARANTINE WITH REFERENCE TO INTERSTATE TRAFFIC

In order to protect the several states and territories from the introduction of quarantinable disease from another state or territory, the United States Public Health Service should extend the general principles of federal quarantine to include interstate and interterritorial travel. These regulations should include protective measures against disease vectors, when indicated and practical, as well as against diseases themselves. It is clearly recognized that owing to the volume and speed of travel across state boundaries, little can be done in this regard, but under rare conditions it may be necessary and possible to limit traffic. The requirement of certain sanitary measures on interstate conveyances has been and is practicable.

Under certain conditions, the control should extend to communicable diseases and such regulations should be promulgated from time to time by the Surgeon General of the United States Public Health Service.

IV. QUARANTINE WITH REFERENCE TO U. S. MILITARY SERVICES

The Navy and the War Departments should each appoint an Officer in charge of quarantine in their respective services. A medical officer with suitable rank should be appointed to this office with duties of organization, administration, inspection of, and consultation upon matters of military quarantine performance and interest. In the Navy, he should be directly under the Chief of the Bureau of Medicine and Surgery, nominated by him, and appointed by the Secretary of Navy. He should maintain liaison with the several medical inspectors and with the Division of Preventive Medicine.

The Officer in charge of quarantine in the Army should be nominated

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by the Surgeon General, and appointed by the Secretary of War. He should be assigned to an echelon assuring effective function with regard to all those agencies involved in quarantine matters, and he should maintain liaison with the offices of the Surgeon General, of the Air Surgeon, of the Inspector General, and with the Theater Commanders.

Both officers should be the representatives of their respective Departments on an informal board, of which the third member should be the Chief of the Foreign Quarantine Division of the Bureau of Medical Services of the United States Public Health Service. In that capacity, each should act as liaison officer between his own and the other two departments. The Officers in charge of quarantine in the Army and Navy should also correlate the quarantine interests of their services abroad with local quarantine or public health organizations. They may be expected to be assigned additional temporary duties from time to time.

While the application of quarantine practices in the United States and its possessions is basically a function of the United States Public Health Service, the actual procedures pertaining to the Armed Services should be carried out, under the Officer in charge of quarantine, by service personnel. The Chief of the Section of Foreign Quarantine of the United States Public Health Service, or his representative, should have the privilege of periodic inspection of the procedures carried out by the Armed Services, and should act as consultant on quarantine.

The individual Service quarantine officers should be designated as Acting Assistant Surgeons in the United States Public Health Service for this purpose, and should make unclassified reports to the local or regional United States Public Health Service officer, through the commanding officer, and full reports to the respective Officer in charge of quarantine by military channels.

In general, the same fundamental regulations should pertain to military and civilian personnel and conveyances; however, the details of application will at times be different. (App. Items 19 and 20). Requirements of foreign countries will be respected, complied with, and considered minimal. Because military personnel are required to be protected by vaccination against the quarantinable diseases they may encounter in their duties and because they are under constant medical supervision, especially when in a travel status, they should ordinarily require no additional quarantine processing when arriving in ports of the United States, its territories and possessions.

As the fundamental procedure, disinsectization of aircraft should be performed by flight personnel immediately before takeoff where disinsectization is indicated. At designated stations, it may be done by special ground crews from medical corps personnel. The exact process and locations should be recommended by the Officer in charge of quarantine.

Animals will not be carried by service aircraft except on permits granted by the respective Surgeons General in accordance with military and civilian regulations.

The Officers in charge of quarantine should assist the Section of Preventive Medicine and Public Health Services where exceptional conditions warrant, in protecting American service personnel from quarantinable and exotic diseases.

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SPECIAL SUMMARY

At the suggestion of Brigadier General J. S. Simmons and Dr. R. C. Williams, the Interdepartmental Quarantine Commission herewith submits a special outline of its recommendations divided into the following four major headings: (I) Immediate coordinate action by the United States Army, Navy, and Public Health Service, (II) Immediate action by the United States Public Health Service, (III) Immediate action by the Armed Services, and (IV) Future action by the United States Public Health Service.

In order to make the suggestions cover a complete program, some items refer to procedures already in partial or complete operation. Reference may be made to the text of the Commission's report for supportive data.

(I) Immediate coordinate action by the United States Army, Navy, and Public Health Service.

1. Certain quarantine procedures relative to the armed services and prisoners of war, including necessary sanitary measures, such as disinfection of personnel, clothing and conveyances shall be performed in the United States, its territories and possessions, by qualified members of the Army and Navy, in accordance with plans agreed upon.

2. Military officers shall

- a. Take steps necessary to prevent implantation of insects arriving on aircraft from abroad.
- b. Enforce current federal and military regulations governing the importation of psittacine birds and other animals.
- c. Take steps necessary to detect quarantinable diseases among persons (military and civilian) arriving by military conveyance, and to prevent the spread of these diseases.
- d. Be designated Acting Assistant Surgeons of the Public Health Service, without additional compensation, for the performance of quarantine duties. The designation shall be made directly to, or shall be delegated by a superior officer specifically to, the one immediately charged with the performance of the duties.

3. Designated officers of the Public Health Service shall from time to time visit Army and Navy units where quarantine procedures are performed to confer with responsible officers, to insure uniformity and effectiveness of measures employed, and to act as consultants and advisors.

4. Measures to prevent the introduction of quarantinable diseases by military airplanes arriving at civilian airports may be undertaken by officers of the armed services in accordance with agreements with the Public Health Service.

5. Reports of quarantine activities by officers of the Army and Navy will be transmitted to the Surgeon General of the United States Public Health Service through the proper military channels and will indicate, subject to security regulations, the number of conveyances inspected, the cases of quarantinable diseases detected, and other pertinent information.

6. Vessels of the Army, Navy and Coast Guard will continue to be

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exempted from quarantine inspection provided the vessel is from a clean port and carries a commissioned medical officer. Vessels from ports not classed as clean may also be exempted provided a commissioned medical officer aboard certifies the behavior of the vessel in the infected port precluded the danger of introduction of quarantinable diseases.

7. The Army and Navy shall each designate one qualified medical officer to

- a. Act as liaison officer for quarantine with the United States Public Health Service.
- b. Supervise quarantine functions carried out by the respective armed service in the United States, its territories and possessions, and in other areas in which the armed forces may undertake similar responsibilities. These will be known as Officers in charge of quarantine.

(II) Immediate action by the United States Public Health Service

1. Foreign Quarantine Circulars Numbers 77 and 71 should be revised in accordance with the preceding principles, and should provide for the use of a simplified Aircraft Quarantine Declaration (see form suggested by the Commission). They should require disinsectization of planes from all places except the United States, Alaska, Canada and its adjacent areas, Iceland, Greenland, British Isles, Virgin Islands, Mexico west and north of a line running just north of Acapulco and Vera Cruz, the Bahamas, Bermuda, Curacao, Aruba and the Galapagos Islands. All flights to Hawaii should require spraying. Spraying should be permitted either at takeoff, in flight or on landing, under conditions discussed in the report (fully loaded and with ventilation suspended). Planes should inform the traffic control tower on arrival that spraying has or has not been accomplished, and if not, no unloading should occur until the plane has been properly disinsectized. A plane should be considered satisfactorily treated when the equivalent of 0.012 grams of pyrethrins per 1000 cu. ft. of space has been distributed throughout the plane, with a holding time of two minutes. The time of spraying should be noted on the Clearance Form of the aircraft, and filed with the operations officer at the airport of arrival. Emphasis should be placed on the performance of the spraying by the flight personnel, and on supervision by the Public Health Service or its delegated agents.

The provisions of AAF Reg. 61-3 and Bumed Form Letter Number 28, revised, should be accepted as satisfactory for quarantine and disinsectization in military aerial traffic. Passengers of aircraft should be canvassed at times to determine if the proper procedure has been carried out in the disinsectization of planes, and inspectors should occasionally check on the procedures by riding the route incognito.

2. Consultation should be held with manufacturers of aircraft regarding the screening of openings into spaces of planes outside the cabin, with a view to satisfactorily protecting them against entrance of insects.

3. Periodic surveys of insect breeding about airports of entry should be continued, and routine searching of planes and identification of recovered insects should be discontinued, except for periodic sampling.

4. Study of the effect of airplane flight upon viability and breeding of insects should be undertaken. This may be done in conjunction with the

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Department of Agriculture, Bureau of Entomology and Plant Quarantine.

5. A notice should be published enumerating those immunizations required of travelers before entry into the United States, and the advantages offered to entrants into this country if immunized.

6. The traveler, before or on arrival in the United States should complete a form showing the character and dates of his immunizations, and the places of his travel or residence during the preceding two weeks. This form may later be replaced by an International Immunization Record and Travel Log (see form suggested by the Commission).

7. Quarantine procedure should be determined by the history of possible exposure, and by immunization records, and with less emphasis on physical inspection and taking of temperature.

8. Non-medical personnel, especially nurses at airfields of entry, should be utilized for the performance of quarantine in accordance with the principles of the preceding paragraph. Physicians should be utilized for consultation when necessary.

9. Leprosy should be deleted from the list of quarantinable diseases.

10. Criteria for detention of persons under observation upon entry in this country should be restated.

11. The remaining quarantine hospitals and detention spaces should be decommissioned, and provision made for the care of persons under observation or treatment for quarantinable diseases in Marine, federal, state, county, municipal or private hospitals or facilities.

12. Criteria for surveillance should be restated and a revised method of surveillance should be instituted. If a bond is not required, the system should nevertheless provide a definitive report to the Public Health Service.

13. Physical examination should be performed on only those aliens intending permanent residence; the procedure in reference to others should be reduced to the usual quarantine measures.

14. A program of education in the light of scientific knowledge, should be undertaken relative to quarantine exposure, risks and procedures. Although directed to the general public this should particularly reach the air-traveling public and the personnel of the airways.

15. The American Bill of Health should be discontinued.

16. Foreign Quarantine Division Circular Number 83 should be republished if Bills of Health are required of vessels of the Armed Services.

17. Radio or signal pratique should be adopted for vessels arriving in ports of the United States, on the basis of the Marine Quarantine Declaration and with liberal approval of carriers.

18. Discontinuance of the routine use of rat guards should be authorized.

19. Control of insects on surface vessels should be enforced when indicated.

20. Consultation should be held with the State Department in order to promote more frequent and prompt consular reports on health. The possibility of routinely sending these by radio or cable should be discussed.

21. Dissemination of quarantine data to quarantine stations by telegram or teletype should be instituted, reserving the published Public Health Report for confirmation, summary and general distribution.

22. The names of ports and zones considered infected, especially

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those with yellow fever and plague, should be published every three to six months. These areas should be restricted as much as possible in the light of information available. Arbitrary periods after infection before an area may be considered clean should be eliminated.

23. Consideration should be given by the Panama Canal Company to the substitution of rat inspection, along with fumigation if a sufficient number of rats are found, for the routine requirement that all vessels passing through the canal be fumigated unless possessing a deratization certificate valid within 6 months.

Many of the above suggestions will be provided in the revisions of the United States Public Health Service regulations offered by the Commission in Part III of its Final Report.

(III) Immediate action by the Armed Services

1. Each service should appoint, by letter from the respective Secretary, a qualified Officer in charge of quarantine, with duties of

- a. Liaison with the Public Health Service. These officers, together with one from the Public Health Service, should be authorized to consider interservice relations and to keep their respective services informed on matters of quarantine.
- b. Establishing and supervising quarantine functions within the respective armed force, including the instruction of military officers performing quarantine duties, the preparation of directives and forms, the collection of pertinent reports, and the inspection of operations and installations concerned with these functions.
- c. Integration of quarantine interests of the armed services with health agencies in foreign countries and areas.

2. AAF Reg. 61-3 and Bumed Form Letter Number 28 should be revised in accordance with interdepartmental agreement.

3. Quarantine regulations and directives should be applied to all military planes, rather than primarily to those of the transportation commands.

4. Directives clarifying the transportation of pets and animals by military aircraft should be published.

5. Comprehensive and prompt distribution of epidemiological data to military quarantine officers should be undertaken.

6. Consideration should be given to revisions in military regulations and directives to be suggested by the Commission in Part III of its final report.

7. Education of ground, flight and passenger personnel should be instituted regarding requirements and methods of quarantine and disinsectization in international flight.

(IV) Future action by the United States Public Health Service

1. An international conference should be proposed to consider uniformity of quarantine procedures and adoption of

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- a. The "Singapore system," with a special code, for international exchange of epidemiological data.
- b. A system of emergency dissemination of data through the airways communications system.
- c. An International Travel Log and Immunization Record.
- d. A corps of international sanitary and health observers and reporters.

2. Routine consular health reports should be abandoned after establishment of the "Singapore system." This should not eliminate emergency reports of epidemiological data by consuls.

3. The use of radio pratique should be extended.

4. International agreement should be reached on privileges to be extended to rat proofed vessels.

5. International agreement should be reached on maximal and minimal standards of sanitation in marine and aerial ports.

6. Practice, including disinsectization, should be aimed at accomplishing as much of the quarantine procedure as is practicable before departure of the conveyance.

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INTERDEPARTMENTAL QUARANTINE COMMISSION

Final Report - Part III

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FINAL REPORT, PART III

SUGGESTIONS FOR MODIFICATIONS OF CURRENT REGULATIONS

In accordance with the terms of reference, there follow suggestions for changes in the current regulations of the three services in conformity with the principles of quarantine procedures discussed in Parts I and II. It is understood that the United States Public Health Service now has a committee charged with revision of the code of the service, and it is trusted that these suggestions may be of value to the committee. Similarly these suggestions may be of value to those charged with the revision of regulations and directives in the armed services.

All these suggestions are made with the primary purpose of providing regulations which will be consistent throughout the three services insofar as that is practicable, and where deviations are necessary of assuring a pattern consistent with the general aims of federal quarantine being followed. It is evident that these recommendations may require modification in accordance with official acceptance of the suggestions contained in Parts I and II.

During the detailed review of Army and Navy regulations and directives, attention has been given to certain diseases which are neither exotic nor quarantinable from an international viewpoint. Remarks are in some instances made in reference to immunization against these diseases for the purpose of facilitating quarantine procedures. It is noted that since certificates of immunization form an essential feature of the control of personnel at ports of embarkation and entry, minor variations which of themselves have no significance sometimes become of administrative importance.

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UNITED STATES PUBLIC HEALTH

QUARANTINE REGULATIONS,

1940

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- Fees and enforcement
- 11.261 Visitation of vessels.
- 11.262 Remanding of vessels to quarantine stations.
- 11.263 Seized vessels.
- 11.264 Rates to be charged vessels for quarantine services.

CROSS REFERENCE

Department of State regulations relating to quarantine for vessels, the detail of medical officers at consulate, and requirements for a bill of health: See Foreign Relations, 22 CFR 89.375-89.380.

SECTION 11.1 QUARANTINABLE DISEASES. For the purpose of the regulations in this part the quarantinable diseases are cholera, yellow fever, smallpox, (exanthematous) typhus fever, leprosy, plague, and anthrax. † (Sec. 3, 27 Stat. 450; 42 U.S.C. 92) [Par. 1]

† The source of §§ 11.1 to 11.262, inclusive, (except for amendments and other sources noted in the text,) is Quarantine regulations of the United States Public Health Service, Secretary of the Treasury, Mar. 22, 1920.

BILL OF HEALTH

11.11 Bill of health required; exceptions. (a) The master of any vessel or aircraft clearing or departing from any foreign port or any port in the possessions or other dependencies of the United States for a port in the United States or its possessions or other dependencies must obtain a bill of health, in duplicate, signed by the proper officer or officers of the United States as provided by law, from the port of departure and ports of call, except as hereinafter specifically provided for. The port of departure shall be the first port from which a vessel clears or departs on a voyage to the United States, or (and) the first port at which cargo or persons are taken on board for the United States. The port of call shall be any port subsequent to the port of departure at which the vessel officially enters or in any other manner has direct contact with the shore, except that which is absolutely necessary for taking on bunkers or other stores. (For purposes of these regulations contact with shore is considered to have occurred when :) loading of sea stores

takes place. --) when a person goes ashore, --) when cargo is loaded, --) when a person other than an official boards, --) when the gang plank is lowered or --) when a hawser is secured in a plague port.) The bill of health shall be issued not to exceed 48 hours before the departure of the ship to which it is issued. It is believed, however, that consular officers may exercise (subject to) discretion in this matter to cover unusual circumstances constituting emergencies.

(b) Any vessel or aircraft clearing from or leaving any foreign port or place, or from any port or place in the possessions or other dependencies of the United States for a port or place in the United States or its possessions or other dependencies shall be required to obtain a bill of health, in duplicate, signed by the proper officer or officers of the United States as provided for by law, except as provided for in (a); and further provided that aircraft may be exempted from obtaining said bills of health except during the prevalence of any of the quarantinable diseases at such foreign port or place, or at such port or place in the possessions or other dependencies of the United States.

(c) (b) Vessels operating exclusively between Canadian, (Caribbean Islands, Bahaman, Bermudian and Lower Californian, New Foundland, Islands of St. Pierre, Miquelon and Labrador) ports and ports in the continental United States, Territory of Hawaii and Alaska are exempted from obtaining consular bills of health at Canadian ports and from quarantine inspection upon arrival at ports in the continental United States and Alaska. Vessels operating exclusively between -ports in the Republic of Cuba and in the Bahama Islands and ports in Florida, south of 28° north latitude, and vessels operating exclusively between ports on the west coast of Lower California and ports in the State of California, south of 33° north latitude, are exempted from obtaining consular bills of health at Cuban and Bahama Islands ports and at ports on the west coast of Lower California, respectively, and from quarantine inspection upon arrival at the ports designated in the United States, but such vessels may be subjected to inspection to determine rat infestation and, when found rat infested, to deratization measures. However, during the prevalence of any of the quarantinable diseases at any foreign port of departure or call, all aforementioned vessels shall obtain at any such infected port or ports from the consular officer of the United States, or from the medical officer of the United States, when such officer has been detailed by the President, a bill of health, in duplicate, in the form prescribed by the Secretary of the Treasury, and such vessels shall be subject to quarantine inspection upon arrival at any port in the continental United States or Alaska.

(d) A vessel which calls at any foreign port for orders or for the purpose of taking on bunker coal, bunker oil, or necessary sea stores, or in distress or because of any other emergency, which does not officially enter or clear and has no contact with shore except for purposes herein specified, and which shall depart within 24 hours after arrival, shall not be required to obtain a bill of health at that port.

(e) (c) A vessel calling at ports of the United States for orders or for the purpose of taking on bunker coal, bunker oil, or necessary sea stores, or in distress or because of any other emergency, which does not officially enter, shall not be required to produce bills of health, provided that the vessel, its crew or passengers has no contact with the shore while in the United States port, except for the purposes herein specified.

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(f) (4) A vessel on a definite voyage to foreign countries and return to the United States carrying passengers or soliciting passengers for the entire voyage, shall be required to take a bill of health from each foreign port subsequent to its clearance or departure from the United States, provided the voyage is of 30 days duration or less; if of more than 30 days duration, it shall take a bill of health from the foreign port 30 days previous to intended arrival at the first United States port, and such port will be considered the port of departure and all subsequent ports will be considered ports of call; Provided, however, That if any cargo or passengers for the United States are (1g) taken on at a port entered more than 30 days before intended arrival at a United States port, this port will be considered the port of departure as already specified.

(g) (a) A vessel touching at a foreign port where there is no consul or consular agent (or other authorized officer) of the United States shall not be required to present an American bill of health from such port on entry into a port of the United States, but a bill of health may be issued by the consul or consular agent of a friendly government at such foreign port authorized to issue such bills of health.

(h) (f) A vessel that has received pratique in the United States port, and the proceeds to Canadian ports only and returns direct to a United States port, shall be considered as operating exclusively between United States and Canadian ports, and shall not be required to take a bill of health from the Canadian port or ports.

(i) (g) In lieu of bills of health, vessels departing ports of the territories, possessions or dependencies of the United States, shall obtain a domestic Port Sanitary Statement when departing for ports of the United States, its territories, possessions or dependencies, however, such vessels may be subject to quarantine inspection. (Secs. 2, 3, 27 Stat. 450, 28 Stat. 372, 41 Stat. 1149, 43 Stat. 809, sec. 7 (b) (3), 44 Stat. 572; 42 U.S.C. 82, 92, 49 U.S.C. 177 (b) (3)) Dept. circ. 385, June 24, 1927; Pars. 2, 3, Quarantine regulations, Public Health Service, June 1920, amdt. 11, Dec. 22, 1928, amdt. 16, May 7, 1937

Cross References: For Department of State consular regulations requiring that a bill of health be obtained from consul for vessels clearing for United States ports, see 22 CFR 89.375. For Bureau of Marine Inspection and Navigation regulations relating to port sanitary statements, see 46 CFR 5.13A.

11-12 Issuance in insular possessions and dependencies of the United States. In order to assure uniform practice as regards the issuance of American bills of health in the insular possessions and dependencies of the United States, the following instructions are issued:

(a) The use of domestic Port Sanitary Statements in lieu of the use of the international standard form of bill of health prescribed by the Secretary of the Treasury and the Pan American Sanitary Code, will not be permitted in ports in the insular possessions or dependencies of the United States.

(b) Under the Quarantine laws and regulations of the United States every vessel leaving or departing from a port in the insular possessions or dependencies of the United States for a port in the United States, its insular possessions or dependencies, is required to take out an American

bill of health in duplicate. Inasmuch as there are no American consuls stationed in ports in the insular possessions and dependencies of the United States such bills of health shall be issued by the quarantine officer on duty in such ports.

(c) The issuance of American bills of health by such quarantine officers is conditioned upon the proper observance of the applicable outbound quarantine requirements prescribed in the Quarantine Regulations administered by the Public Health Service. Vessels will be given bills of health by the quarantine officer only when such appropriate provisions have been properly observed.

(d) In those instances in which the quarantine officer is not satisfied that such requirements have been properly observed, and that the vessel may safely enter any port in the United States, its possessions or dependencies, without danger of introducing quarantinable disease, such quarantine officer shall refuse to issue a bill of health and in event of departure of vessel without the required bill of health, shall report by cable to the quarantine officer at the port of destination in the United States, its possessions or dependencies, that the vessel has been refused a bill of health, and the reasons therefor.

(e) Medical officers in charge of quarantine stations in ports of the United States, its possessions or dependencies, upon receiving notification by cable of the refusal of a bill of health to a vessel at a port in the insular possessions or dependencies of the United States, shall subject that vessel; upon arrival at the port of destination, to quarantine inspection and such other prescribed quarantine measures as may be necessary to prevent the introduction of quarantinable disease into the United States, and shall report the vessel as having failed to present the required bill of health, to the collector of customs for appropriate action.

(f) Collectors of customs shall refuse entry to vessels from ports in the possessions and dependencies of the United States which fail to present a bill of health; and will remand such vessels to the quarantine station for quarantine inspection and such treatment as may be necessary prior to entry.

(g) The instructions in this section shall be observed in the Virgin Islands, Puerto Rico, the Panama Canal Zone, the Hawaiian Islands, the Island of Guam, the Islands of the American Samoa group, and Wake Island, which are insular possessions or dependencies of the United States. The Philippine Islands are specifically exempted from the provisions applicable in general to the insular possessions and dependencies of the United States, and ports in the Philippine Islands have a status similar to that of foreign ports. Ports in Alaska are exempted from the foregoing bill of health requirements excepting during the prevalence of quarantinable disease in such ports; in accordance with provisions of the quarantine laws and regulations governing vessels engaged exclusively in trade between foreign ports on or near the northern frontier of the United States and ports in the United States.* (Dept. circ. 396, Aug. 4, 1931)

* §§11-12 to 11-267, inclusive, issued under the authority contained in sec. 3, 47 Stat. 450; 42 U.S.C. 92.

INSPECTION OF INBOUND VESSELS

11.21 Inspection of vessels bound for United States, possessions or dependencies. The officer issuing the bill of health to vessels leaving foreign ports and ports in the possessions or other dependencies of the United States for ports in the United States or its possessions or other dependencies shall satisfy himself, by inspection if necessary, that the conditions certified to therein are true. He is authorized, in accordance with law, to withhold the bill of health until he is satisfied that the vessel, the passengers, the crew, and the cargo have complied with all the quarantine laws and regulations of the United States.*† (Add last two complete sentences from Amendment 19). [Par. 4]

11.22 Required of certain vessels. Inspection is required of--

(a) All vessels from ports at which cholera, yellow fever, or plague in men or rodents prevail, or at which smallpox or typhus fever prevails in epidemic form, and at which (if) a medical officer is detailed (to the port).

(b) All vessels carrying steerage (4) passengers; but need only include the inspection of such passengers and their living apartments if sailing from a healthful port.*† [Par. 5]

11.23 To include cargo, passengers, crew, personal effects. Inspection of the vessel is such an examination of the vessel, cargo, passengers, crew, personal effects of same, including examination of manifests and other papers, food and water supply, the ascertainment of its relations with the shore, the manner of loading and possibilities of invasion by rats and insects as will enable the inspecting officer to determine if the regulations in this part have been complied with.*† [Par. 6]

11.24 Time of inspection; no communication after inspection. When an inspection is required, it should be made by daylight, as late as practicable before sailing. The vessel should be inspected before the passengers go aboard, the passengers just before embarkation, and the crew on deck, and no communication should be had with the vessel after such inspection except by permission of the officer issuing the bill of health.*† [Par. 7]

11.25(4) Vessels to be clean prior to receiving cargo or passengers. Vessels, prior to stowing cargo or receiving passengers, should be mechanically clean in all parts, especially in the hold, forecastle, and steerage and loose dunnage in unladen compartments shall be so arranged as to prevent harborage of rodents.*† [Par. 8]

*The Sanitary measures applicable to second-cabin passengers will be those designated for first-cabin passengers or for steerage passengers, according as the arrangements of their quarters and accommodations aboard, both sanitary and for association, class them in the opinion of the inspecting officer with the first cabin or steerage.

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

11.26 (5) Disinfection of vessels. Any portions of the vessel liable to have been infected by any communicable disease should be disinfected before the issuance of the bill of health.*† [Par. 9]

11.27 (6) Health and comfort of passengers. The air space, ventilation, food and water supply, hospital accommodations, and all other matters mentioned therein promotive of the health and comfort of the passengers must be in accordance with the provisions of the Act of Congress approved August 2, 1882, entitled "An Act to regulate the carriage of passengers by sea" (22 Stat. 186; 46 U.S.C. 151-162, 171).*† [Par. 10]

11.28 (7) Articles coming from infected districts. Bedding, upholstered furniture, soiled wearing apparel, personal effects, and second-hand articles of a similar nature coming from a district known to be infected with smallpox or as to the origin of which no positive evidence can be obtained, and which the consular or medical officer has reason to believe is infected, should be disinfected prior to shipment. Articles similar to the above mentioned, if from a district infected by plague or typhus, should (may) be inspected, and, if necessary, treated to destroy vermin.*† [Par. 11]

11.29 Articles shipped through infected ports. Articles from an uninfected district shipped through an infected port may be accepted without restriction if not exposed to infection in transit.*† [Par. 12]

11.30 (28) Regulations regarding introduction of diseases of animals. Nothing in the regulations in this part shall be construed to modify or nullify in any way existing restrictions promulgated by the Secretary of the Treasury (Surgeon General of the U.S. Public Health Service) at the instance of the Secretary of Agriculture for the prevention of the introduction of diseases of animals.*† [Par. 13]

11.31 (29) Articles shipped from or through infected ports. Any article shipped from or through an infected port or place which the consular or medical officer has reason to believe infected, should be disinfected.*† [Par. 14]

11.32 (0) Undisinfected articles. Any article presumably infected which cannot be disinfected should not be shipped.*† (Articles liable to harbor rats or rat fleas should be stored in rat proof warehouses or means taken to prevent the access of rats. Articles which harbor rats or rat fleas should not be shipped unless freed of such vermin by chemicals, fumigation or stowage under conditions free of rats for at least 30 days.)

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

11.33 Division of passengers into classes. Passengers, for the purpose of the regulations in this part, are divided into two classes, cabin and steerage.*† [Par. 16]

11.34 (1) Embarkation at infected ports. So far as possible passengers should avoid embarking at a port where quarantinable disease prevails, and communication between the vessel and the shore should be reduced to a minimum. In such a port the personnel of the vessel should remain on board during their stay.*† [Par. 17]

11.35 (2) Persons suffering from certain diseases. No person suffering from a quarantinable disease, or scarlet fever, measles, diphtheria, poliomyelitis (infantile paralysis), influenza, chickenpox, or cerebrospinal meningitis should be allowed to ship.*† [Par. 18]

11.36 (3) Passengers, etc., from infected localities. Passengers and crews, merchandise, and baggage, prior to shipment at a noninfected port but coming from an infected locality should be subject to the same restrictions as are imposed at an infected port.*† [Par. 19]

R E Q U I R E M E N T S A T S E A

11.51 Measures by master of vessel. The master of a vessel should observe the following measures on board his vessel:

(a) The water-closets, forecastle, bilges, and similar portions of the vessel liable to harbor infection should be frequently cleansed and disinfected.

(b) Free ventilation and rigorous cleanliness should be maintained in all portions of the ship during the voyage and measures taken to destroy rats, mice, fleas, flies, mosquitoes, and all vermin.

(c) A patient sick of a communicable disease should be isolated and one member of the crew (personnel) detailed for his care and comfort, who, if practicable, should be immune to the disease.

(d) Communication between the patient or his nurse and other persons on board should be reduced to a minimum.

(e) Used clothing, body linen, and bedding of the patient and nurse should be immersed at once in boiling water or in a disinfecting solution. (disinfected if indicated).

(f) The compartment from which the patient was removed (and articles liable to convey infection) should be disinfected and thoroughly cleansed. (as indicated). Articles liable to convey infection should remain in the compartments during the disinfection when gaseous disinfection is used.

*The Sanitary measures applicable to second-cabin passengers will be those designated for first-cabin passengers or for steerage passengers, according as the arrangements of their quarters and accommodations aboard, both sanitary and for association, class them in the opinion of the inspecting officer with the first cabin or steerage.

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

(g) Any person suffering from malaria or yellow fever should be kept under mosquito bars and the apartment in which he is confined closely screened with mosquito netting. All mosquitoes on board should be destroyed by fumigation. Mosquito larvae (wigglers or wiggle-tails) should be destroyed in water barrels, casks, and other collections of water about the vessel (by dumping or acceptable larvicides) by the use of petroleum (kerosene); where this is not practicable, the receptacle should be covered by mosquito netting to prevent the exit of mosquitoes from such breeding places.

(h) In the case of bubonic plague, special measures must be taken to destroy rats, mice, fleas, and other vermin on board, and in case of pneumonic plague, the patient should be isolated, the body discharges disinfected, especially sputum, and the attendant should wear a mask.

(i) In the case of typhus, special measures should be taken to destroy vermin.

(j) In the case of cholera, typhoid fever, or dysentery, the drinking water (dishes and utensils) should be boiled (sterilized) and the food thoroughly cooked. The discharges from the patient should be immediately disinfected and thrown overboard.* † [Par. 20]

11.52 Inspection by ship's physician. An inspection of the vessel, including the steerage, should be made by the ship's physician once each day.* † [Par. 21]

11.53 Appearance of certain diseases on board ship. Should cholera, yellow fever, smallpox, typhus fever, plague, or any other communicable disease appear on board a ship while at sea, those who show symptoms of these diseases should be immediately isolated in a proper place; the ship's physician should then immediately notify the captain, who should note same in his log, and all of the effects liable to convey infection which have been exposed to infection should be destroyed or disinfected. In the case of smallpox, the entire personnel should be vaccinated.* † [Par. 22]

11.54 Cleansing of hospital. The hospital should be cleansed as soon as it becomes vacant.* † [Par. 23]

11.55 In case of death. The (Those) dead, (of quarantinable diseases) except these dead of yellow fever, should be enveloped in a sheet saturated with one of the strong disinfecting solutions, without previous washing of the body, and at once buried at sea or placed in a coffin hermetically sealed.* † [Par. 24]

Cross Reference: For regulations relating to the passing through quarantine of bodies of persons dead from cholera or smallpox, see § 11.86.

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

11.37 Disinfecting solutions. The following disinfecting solutions are recommended for use at sea:

FORMULAE FOR STRONG DISINFECTING SOLUTIONS

Bichloride of Mercury (1:500)

	Parts
Bichloride of mercury-----	1
Sea water-----	500
Mix.	

Carbolic Acid (5 Percent) (Liquor Cresolis compositus or similar compound)

Alcohol-----	50
Carbolic acid, pure-----	50
Mix.	
Then add fresh water-----	900

(Chlorinated Lime (1:10000))

Chlorinated lime powder (yielding 66% free chlorine)-----	1
Fresh water-----	6,666

FORMULAE FOR WEAK SOLUTIONS

Bichloride of Mercury (1:1,000)

Bichloride of mercury-----	1
Sea water-----	1,000

Carbolic Acid (2½ Percent)

Carbolic acid, pure-----	25
Fresh water-----	1,000

Formalin (5-Percent)

Formaline (or formal)-----	50
Water-----	950

It is suggested that a vessel should carry for every 100 passengers: Bichloride of mercury, 5 pounds; carbolic acid, 10 pounds, -alcohol, 10 pounds; formalin, 10 pounds; 100 pounds of sulphur and 12 Dutch ovens, about 12 inches diameter, and an adequate supply of fresh vaccine virus.*† [-Par. 26-]

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

INSPECTION UPON ENTRY

11.61 Quarantine; United States-Canada reciprocal pratique.

(a) Every vessel subject to quarantine inspection, entering a port of the United States, its possessions or dependencies, shall be considered in quarantine until given free pratique. Such vessel shall fly a yellow flag at the foremast head and shall observe all the other requirements of vessels actually quarantined.

(b) Effective January 1, 1930, vessels from foreign ports (other than those on or near the northern frontiers of the United States) which enter the international waters of the Straits of Juan de Fuca, Baro, Georgia, Rosario, and the Puget Sound, their tributaries and connected waters on the west coast, or the international waters of the St. Lawrence River and the Great Lakes and their tributaries and connected waters on the east coast, which are destined for both (for only those) United States and Canadian ports located thereon only will be required to undergo one quarantine inspection to be performed by the quarantine officers of the respective Government having jurisdiction over the first port of arrival provided that quarantinable disease has not occurred on board since granting the original pratique and was not prevalent in such local ports visited.

Vessels which make a United States port their first port of arrival will undergo the prescribed quarantine inspection and treatment by the quarantine officer in that port, and when cleared from quarantine such vessels will be issued pratique in duplicate, the original copy of which will be required to be delivered to the collector of customs for entry of vessel and the duplicate copy will be retained on the vessel for presentation upon secondary arrival at the first Canadian port.

Vessels which have first entered a Canadian port and have received pratique in duplicate following prescribed inspection and treatment by the Canadian quarantine officer of that port, will be permitted to enter secondarily the first United States port of call without the formality of quarantine reinspection, provided such vessel presents and delivers to the collector of customs the duplicate copy of the original Canadian pratique duly approved by the United States quarantine officer of that (the secondary) port, together with the required American bills of health; and provided further, that since receiving such original pratique quarantinable disease has not occurred on board the vessel and was not prevalent in the local ports visited.

Vessels upon which quarantinable disease has occurred since original pratique was granted, or which have visited local ports in which quarantinable disease prevails, shall be required to report to the United States quarantine station for appropriate treatment and shall present and deliver to the collector of customs of the port a supplementary pratique granted by the quarantine officer of the port in addition to the other required papers, prior to being accorded entry.

Vessels which have been granted pratique and permitted entry in accordance herewith are not thereby exempted from the application of the provisions of article 28 of the International Sanitary Convention of

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

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Paris, 1926, respecting deratization requirements; those requiring deratization under the provisions of the convention or the Quarantine Laws and Regulations of the United States administered by the Public Health Service will be subjected to the prescribed measures as a condition of being granted permission to enter. Vessels so granted conditional entry will be required to satisfy these requirements before being granted clearance.*† [Par. 34, and Dept. circ. 420, Dec. 20, 1929]

Cross References: For deratization requirements of the quarantine regulations in cases where plague has appeared on board ship during voyage, see 11.161-11.172. For fee charged for deratization inspection, see §11.264 (c) (3).

11.62 Certain vessels prior to entry. Vessels arriving at ports of the United States under the following conditions shall be inspected by a quarantine officer prior to entry:

(a) All vessels from foreign ports except those covered by § 11.11 (c). Vessels from a foreign port shall be inspected only at first port of call in the United States, except vessels from ports suspected of yellow fever arriving during the active quarantine season at southern, via northern, ports.

(b) Any vessel with sickness on board.

(c) Vessels from domestic ports where cholera, plague, or yellow fever prevails, or where smallpox or typhus fever prevails in epidemic form.*† [Par. 35]

11.63 (Substitute Amendment #23) To be made between sunrise and sunset; exceptions. The inspection of vessels required by the regulations in this part shall be made between sunrise and sunset, except in case of vessels in distress. Exception may also be made in the case of vessels carrying perishable cargoes, and regular line vessels under regulations approved by the Secretary of the Treasury.*† [Par. 36]

11.64 Extent and method. In making the inspection of a vessel due consideration shall be given before granting pratique to the actual conditions which exist on board at the time of arrival; also to the medical history of the voyage, the sanitary particulars of the passengers and crew, the status of the port of departure and ports of call with respect to the presence of quarantinable diseases therein and the conduct of the vessel while in such ports. The bills of health, the deratization certificate, the clinical record of all cases treated during the voyage and when necessary, the passenger and crew lists, cargo manifests and the ship's log, shall (may) be examined. The passengers, crew, and all other persons on board shall be mustered, examined, and compared with their respective lists and with pertinent data on the bills of health and any discrepancies found shall be investigated; provided, that on regular line vessels, when classified as "uninfected," which carry a medical officer, the muster and inspection of passengers and

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

crews may be limited in the discretion of the quarantine officer to the examination of persons who have received medical treatment during the voyage for sickness accompanied by fever or skin eruption, and such other persons as it may be desirable to examine.* † [Par. 37, amdt. 13, Jan. 24, 1929]

11.65 Boarding of vessels subject to quarantine inspection. No person, except the quarantine officer, quarantine employees, or pilots, shall be permitted to board any vessel subject to quarantine inspection until after the vessel has been inspected by the quarantine officer and granted free pratique, except with the permission of the quarantine officer, and any person boarding such vessel shall, in the discretion of the quarantine officer, be subject to the same restrictions as those imposed on the personnel of the vessel.* † [Par. 39, amdt. 14, Feb. 12, 1937]

Cross Reference: For Bureau of Marine Inspection and Navigation regulations providing that health officers may board a vessel without consent of the master, and may detail any person, subject to his orders, to remain on board, see 46 CFR 2.1.

11.66 Persons with communicable but nonquarantinable diseases; detention. When a vessel arriving at quarantine has on board any of the communicable but nonquarantinable diseases, the quarantine officer shall promptly inform the local health authorities of the existence of such disease aboard and shall make every effort to furnish such notification in ample time, if possible, to permit of the case being seen by the local authorities before discharged from the vessel; Provided, That the quarantine officer may detain arriving cases of communicable but nonquarantinable diseases, and persons having been exposed to such cases, at the quarantine stations when local health authorities do not have facilities for their isolation and care.* † [Par. 40, amdt. 12, Dec. 26, 1928]

DETENTION IN QUARANTINE

11.71 Certain vessels to be placed in detention. Vessels arriving under the following conditions shall be placed in detention:

(a) With quarantinable disease on board or having had such disease on board during the voyage.

(b) Any vessel which the quarantine officer considers infected with quarantinable disease.

(c) A vessel arriving at a port south of the southern boundary of Virginia in the season of active quarantine, April 1 to November 1, from a port infected or suspected of infection with yellow fever.

(d) Vessels arriving at ports north of this line and south of the southern boundary of Maryland between May 15 and October 1, if from a port infected or suspected of infection with yellow fever.

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

(c) In the case of vessels arriving at a northern port without sickness on board from ports where yellow fever prevails, the personnel shall be detained under observation at quarantine to complete 5 days from the port of departure.

(d) Towboats and other vessels having had communication with vessels subjected to quarantine shall themselves be quarantined if they have been exposed to infection.* † [Par. 41]

11.72 Duration. The duration of detention of vessels or personnel herein contemplated will depend upon the quarantinable disease involved and will hereinafter be specifically provided for.* † [Par. 42]

Cross References: For detention of vessels on which cholera has appeared during voyage, see §§ 11.113-11.116. Detention of vessels on which yellow fever has appeared during voyage, see § 11.141. Treatment and detention of vessels on account of plague, see §§ 11.161-11.172. Regulations relating to treatment and detention of vessels with cases of smallpox on board, see § 11.191. Special measures to be taken in regard to vessels on which typhus infection has appeared, see §§ 11.211-11.217.

11.73 Detention of pilots; dunnage of pilots. Pilots will be detained in quarantine a sufficient time to cover the period of incubation of the disease for which the vessel is quarantined, if, in the opinion of the quarantine officer, such pilots have been exposed to infection. The dunnage of pilots shall be disinfected when necessary.* † [Par. 43]

11.74 Vessels in quarantine; outside communication. No direct communication shall be allowed between any vessel in quarantine and any person or place outside, and no communication whatever, between quarantine or any vessel in quarantine and any person or place outside except under the supervision of the quarantine officer.* † [Par. 44]

11.75 Release. After a vessel has been rendered free from infection, it may be furnished with a fresh crew and released from quarantine, while all or part of the personnel are detained.* † [Par. 45]

11.76 Release certificate. The form of certificate which shall be issued to a vessel or aircraft when released from quarantine shall be prescribed by the Surgeon General of the Public Health Service, and shall embody the statement that the vessel or aircraft has in all respects complied with the quarantine regulations prescribed by the Secretary of the Treasury (him), and that in the opinion of the quarantine officer it will not convey quarantinable disease, and that said vessel or aircraft is granted free or provisional pratique to enter her port of destination, the name of which is to be embodied in the blank.* † [Par. 47, amdt. 1, Oct. 22, 1920]

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

11.77 Presentation of release certificate to collector of customs. All vessels requiring inspection under the regulations in this part must present to the collector of customs at the port of entry the quarantine certificate prescribed in § 11.76.*† [Par. 58]

11.78 Subject to additional regulations. Vessels detained at any national quarantine will be subject to such additional rules and regulations as may be promulgated from time to time by the Surgeon General.* Par. 46

11.79 Surveillance (Observation) of detained persons. The persons detained shall be inspected by the physician twice daily, and be under his constant surveillance (observation), and no intercourse will be allowed between different groups while in quarantine.*† [Par. 48]

11.80 Place of detention, carrying infected articles into. No presumably infected articles from an infected vessel shall be carried into the place of detention until disinfected.*† [Par. 49]

11.81 Cleanliness and disinfection. Cleanliness of quarters and of person will be enjoined and daily enforced. Disinfection shall be practiced where there is any possibility of infection.*† [Par. 50]

11.82 Isolation of sick. In any group in which communicable disease appears, the sick will be immediately isolated in hospital, and the remaining persons in the group and their effects appropriately treated and then removed to other quarters, if possible, and the compartments disinfected (when indicated).*† [Par. 51]

11.83 Minimum of communication. Communication between the physician and attendants of the hospital and those detained in other parts of the quarantine station shall be reduced to a minimum.*† [Par. 52]

11.84 Discharge of convalescents. No convalescent shall be discharged from quarantine until after a sufficient time has elapsed to insure his freedom from infection, and this is to be determined by bacteriological examination when necessary and possible.*† [Par. 53]

11.85 Subsistence at vessels' expense. Passengers and crew from vessels in quarantine shall be subsisted at the vessels' expense. Rations and service may be provided at national quarantine stations at rates to be fixed by the Secretary of the Treasury. (Surgeon General, U.S. Public Health Service).*† [Par. 54]

11.86 Passing of bodies through quarantine. The body of a person dead from cholera or smallpox (a quarantinable disease, except yellow fever) shall not be allowed to pass through quarantine until (embalmed) 1 year has elapsed since death. The body of a person dead from typhus or plague

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

may be permitted to pass through quarantine if free from venereal disease; if dead from yellow fever, no precautions are required. Bodies of persons dying at quarantine stations from quarantinable disease should preferably be cremated or buried at station.*† [Par. 55]

(11.87 Release under Surveillance. Persons may be placed under surveillance, if not ill, and if from yellow fever areas less than 6 days and unvaccinated; if from an area of epidemic cholera less than five days and not immunized; if from an area of epidemic exanthematous typhus less than 12 days and unvaccinated; and if from an area of epidemic smallpox less than 14 days and unvaccinated or without valid vaccination certificate. Exposure to quarantinable disease on shipboard is considered to constitute exposure with such areas as are thus specified. All persons released under surveillance shall report by telephone or in person to a licensed physician every second day as long as well, and immediately in case of illness, and in person on the last day of the prescribed period of surveillance. This interval shall consist of that portion of the incubation period of the disease in question which has not already elapsed following last contact. Such persons shall deposit the sum of \$100.00 (one hundred dollars) with a Customs guard, obtaining a receipt upon such form as may be prescribed by the Surgeon General, U.S. Public Health Service. Upon completion of the terms of surveillance this sum shall be refunded.)

CHOLERA: SPECIAL MEASURES AT FOREIGN AND INSULAR PORTS

11.101 Water and food supply of vessels. At ports where cholera prevails special care should be taken to prevent the water and the food supply from being infected (contaminated). The drinking water, unless of known purity, should be boiled (sterilized) and the food thoroughly cooked and protected against contamination, by flies, etc.*† [Par. 59]

11.102 Latrines of vessels. The latrines of vessels must be so arranged that they, including their discharge pipes, can be made and kept mechanically clean.*† (They must not be cross-connected to the safe water supply, nor shall they back-flush.) [Par. 59]

11.103 Shipment of foods. Certain food products that are ordinarily consumed in an uncooked state coming from cholera-infected localities or through such localities, if exposed to infection therein, should not be shipped. Vegetables ordinarily eaten in an uncooked state when grown in districts where cholera prevails, shall not be shipped. Fruits grown on trees or on shrubs may be shipped.*† [Par. 61]

11.104 Baggage of steerage passengers. The baggage of steerage passengers shall be inspected (i) and no food shall be taken aboard in such baggage.*† [Par. 62]

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

11.105 Steerage passengers and crews from infected districts. Steerage passengers and crew coming from cholera-infected districts should be subjected to bacteriological examination, or otherwise detained 5 days in an environment known to be free from any source of infection.*† [Par. 65]

11.106 Steerage passengers and crews shipping at infected ports. Steerage passengers and crew from districts not infected with cholera, shipping at a port infected with cholera, unless passed through without danger of infection, should be treated as those in § 11.105.*† [Par. 64]

11.107 Cabin passengers from infected districts. Cabin passengers coming from cholera-infected districts should produce satisfactory evidence as to their place of abode during the five days immediately preceding embarkation. If it appears that they have been exposed to infection, they (should be treated as those in § 11.105.) shall be detained under medical supervision a sufficient time to cover the period of incubation since last exposure, or otherwise be subjected to bacteriological examination.*† [Par. 65]

11.108 Appearance of disease in detention quarters; embarkation of passengers. Should cholera appear in the barracks or house in which passengers are undergoing detention, no passengers from said houses or barracks who have been previously exposed to this new infection should embark until they have been (declared safe on the basis) determined free of the infection by bacteriological examination, (or detained as in § 11.105) or otherwise isolated for a period of five days.*† [Par. 66]

CHOLERA: SPECIAL MEASURES AT DOMESTIC PORTS

11.111 Appearance on board vessels. Special measures shall be employed against vessels and persons from a cholera-infected place, as likewise when cholera has appeared on board during the voyage.*† [Par. 67]

11.112 Steerage passengers from cholera-infected places to be examined upon arrival in United States ports. All steerage passengers arriving at ports in the United States, its possessions or dependencies, from ports or places where cholera prevails, shall be subjected to bacteriological examination and shall not be admitted to entry until (they have been declared safe.) it has been determined by said examination that they are free from cholera vibries.*† [Par. 68]

11.113 Detention pending result of examination. All persons on vessels upon which cholera has appeared during the voyage shall upon arrival at quarantine be (examined and) detained until (they are declared safe.) it has been determined by bacteriological examination that they are free from cholera vibries.*† [Par. 69]

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

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11.114 Discharge after examination. Persons in detention who are proven by bacteriological (declared safe on the basis of) examination (performed not less than 24 hours after removal from exposure to infection in cholera case or carrier) to be free from cholera organisms may be discharged from quarantine without further detention.*† [Par. 70]

11.115 Detention of exposed persons in lieu of examination. In lieu of (If) bacteriological examination (and then only when it is impracticable; is indeterminate) persons exposed to infection in cholera case or carrier shall be detained in quarantine 5 days after being isolated from such case or carrier.*† [Par. 71]

11.116 Removal and isolation of cholera-infected persons. If a case clinically diagnosed as cholera has occurred on voyage, or if bacteriological examination should reveal the presence of infection in any person on board, such infected person or persons should be removed and isolated. All contacts should be segregated in small groups, and no material capable of conveying infection shall be removed from the ship.*† [Par. 72]

11.117 Foods ordinarily consumed in uncooked state. Fruits and vegetables from an infected ship, that are ordinarily consumed in an uncooked state, shall be destroyed or rendered harmless by cooking.*† [Par. 73]

11.118 Food served to persons in quarantine. The food served to persons in quarantine, unless from a source known to be free from cholera infection, shall be cooked.*† [Par. 74]

11.119 Water supply of vessels in quarantine. The water supply of a vessel detained in quarantine on account of cholera infection, unless determined by bacteriological examination to be free from cholera organisms or B. coli, shall be sterilized. Otherwise it shall be discharged after disinfection.*† [Par. 75]

11.120 Dejecta of quarantined persons. The dejecta of all persons in quarantine on account of cholera shall be disinfected before final disposition, and special precautions shall be exercised in order to prevent the contamination of food or water supply or the spread of the infection through the agency of flies or other insects.*† [Par. 76]

11.121 Personal effects contaminated by dejecta. Personal effects contaminated by dejecta from a cholera case or carrier shall be disinfected.*† [Par. 77]

11.122 Parts of ship contaminated by dejecta. Any part of the ship that has been contaminated by dejecta from a cholera case or carrier shall be washed down with a (strong disinfectant) solution. of bichloride or carbolic acid.*† [Par. 78]

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

11.123 Tests prior to release of persons from quarantine. Carriers or recovered cases shall not be released from quarantine detention until three bacteriological tests performed on consecutive days shall have been proven to be negative.*† [Par. 79]

YELLOW FEVER: SPECIAL MEASURES AT FOREIGN AND INSULAR PORTS

11.131 Period of incubation. For the purpose of the regulations in this part 6 days shall be considered as the period of incubation of yellow fever.*† [Par. 80]

11.132 Prevention of introduction of mosquitoes on board vessels. It is advisable that at ports where yellow fever prevails, precautions should be taken to prevent the introduction of mosquitoes, *Aedes (stegomyia) aegypti* on board the vessel. Water tanks, water buckets, and other collections of water about the vessel should be guarded in such a manner that they shall not become breeding places for mosquitoes. Where the vessel has lain in such proximity to the shore at such places as to render it liable, in the opinion of the inspecting officer, to the access of *Aedes (stegomyia) aegypti* measures should be taken to destroy mosquitoes that may have come on board.* † [Par. 81]

11.133 Passengers and crew previously exposed to infection. Passengers and crew who, in the opinion of the inspecting officer, have been definitely exposed to the infection of yellow fever (i. e., as from a house or locality known to be infected), should not be allowed to embark for 6 days after said exposure. Those immune to yellow fever are exempt from this provision.* † [Par. 82]

YELLOW FEVER: SPECIAL MEASURES AT DOMESTIC AND INSULAR PORTS OF ARRIVAL

11.141 Treatment of vessels. A vessel aboard which a case of yellow fever has occurred at any time during the voyage shall be treated as follows:

- (a) Careful visual and thermometric inspection of all persons.
- (b) The sick are to be immediately disembarked, protected by netting against the access of *stegomyia* mosquitoes, and transferred to a place of isolation.
- (c) Other persons (unless immune) should be disembarked, if possible, and detained under observation for 6 days, dating from the day of last possible exposure.
- (d) Persons under observation presenting an elevation of temperature above 37.6 C. shall be isolated in a screened apartment.
- (e) The ship shall be moored if possible at least 200 meters from the inhabited shore.

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

(f) The ship shall be fumigated for the destruction of mosquitoes before the discharge of cargo, if possible. If a fumigation be not possible before the discharge of the cargo, the discharge of cargo shall be under the supervision of the quarantine officer, and may be permitted as follows: By (1) the employment of immune persons for discharging the cargo; or (2) if nonimmunes be employed, they shall be kept under observation during the discharging of cargo and for 6 days, to date from the last day of exposure on board.*† [Par. 83]

11.142 Fumigation of certain vessels; detention of personnel. A vessel which has lain in such proximity to the shore of a port known to be infected as to render it liable to the access of (Aedes aegypti) stegomyia mosquitoes shall be fumigated and the personnel (unless immune) held in detention under observation for 6 days.*† [Par. 84]

11.143 Treatment of certain vessels. A vessel arriving at southern port (either direct or by way of a northern port of the United States), which, although coming from an infected port or suspected port, has had neither death nor case of yellow fever on board either before departure, during the voyage, or at the time of arrival, and which the quarantine officer is satisfied has not lain in such proximity to the shore as to render it liable to the access of stegomyia mosquitoes, (Aedes aegypti), or which has been fumigated under the supervision of an accredited medical officer of the United States immediately before sailing, may, upon arrival at a port of destination in the United States with good sanitary history and in good condition (including the absence of any exposed collection of water in which A. aegypti might breed) be subjected to the following treatment:

(a) If arriving in 6 days or less, she may be admitted to pratique, with or without fumigation, in the discretion of the quarantine officer and without further detention than is necessary to complete the 6 days. (All immune persons may be discharged.)

(b) If arriving after 6 days she shall be immediately fumigated (unless previously fumigated at a northern port) and may be admitted without detention.*† [Par. 85]

11.144 Vessels from infected ports calling for bunker coal or supplies. Vessels from ports infected or suspected of infection with yellow fever, calling at southern ports for bunker coal or supplies during the active quarantine season may be allowed to take on such cargo after fumigation, (if fumigation is indicated) provided the vessel be anchored in a place inaccessible to stegomyia (Aedes aegypti) and the crew or passengers be detained on board.*† [Par. 86]

11.145 Traffic without detention allowable under certain conditions. Traffic without detention may be allowed during the active quarantine season, from ports infected or suspected of infection with yellow fever, to ports in the United States south of the southern boundary of Maryland under the following conditions:

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

to be informed as to the status of the case.

(a) The vessel must lie at approved moorings in the open harbor; the crew must not be allowed ashore at the port of departure. Every possible precaution must be taken to prevent the ingress of (Aedes aegypti) stegomyia mosquitoes and their access to the crew.

(b) The officer who must go ashore to enter his vessel must be immune to yellow fever. Passengers, unless immune to yellow fever, must have been free from possible exposure to yellow fever for 6 days immediately prior to embarking.

(c) All the above conditions to be certified to specifically by an accredited medical officer of the United States.* † [Par. 87]

11.146 Immune or nonexposed persons. All persons who can prove their immunity to yellow fever or who have not been exposed to possible infection of yellow fever, may be permitted to land at once.* Par. 88

11.147 Method of fumigation: (disinsectization.) For the (There shall be a complete) destruction of mosquitoes there shall be a complete and simultaneous fumigation of (in) all parts of the vessel by (an approved insecticide.) sulphur dioxide gas, 2 percent volume gas, 2 hours' exposure, or by cyanide gas in strength of $\frac{1}{2}$ ounce of cyanide per 1,000 cubic feet of space, one-half hour exposure.* † [Par. 89]

PLAQUE: SPECIAL MEASURES AT FOREIGN AND INSULAR PORTS

11.151 Rats (mice) and fleas. At ports or places suspected of plague infection in rodents every precaution(s) shall be taken to prevent rats (mice) and fleas from getting aboard.* † [Par. 90]

11.152 Fumigation of certain vessels and lighters. Vessels sailing from such ports shall be simultaneously fumigated in all parts, preferably when empty, for the destruction of rats. Lighters should be free of rats, (.) and this is best accomplished by periodic fumigation.* † [Par. 91]

11.153 Guards on connecting lines. If the vessel lies at a dock all connecting lines should be guarded by inverted cones or disks not less than 3 feet in diameter and so fixed as to be always at a right angle to the line to which it is attached.* † [Par. 92]

11.154 (3) Cargo. Articles which harbor or are liable to harbor rats or rat fleas should not be shipped until freed of such vermin, either by the use of chemicals, fumigation, or by preventing the access of rats. The nature of the merchandise and the place and method of stowing prior to shipment must be considered in determining its liability to be a rat or vermin carrier, thus: crated cargo, bags of grain, etc., so stowed as to be used as nesting places for rats would be flea, and might be rat, carriers, (.) and cargo should preferably have been previously stored in rat-proof warehouses. Articles of cargo in open crates should be carefully inspected to determine freedom from rats and, at the discretion of the inspector, may be rejected for shipment if considered as

Human cases shall be considered as proof of an existent rodent infection.

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

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rodent infested. (infested.) When the cargo of a vessel consists of grain or other rat food, extra precautions should be taken to prevent rats from going aboard.* † [Par. 93]

PLAGUE: SPECIAL MEASURES AT PORTS OF ARRIVAL

11.161 Detention of ships. Ships on which plague has occurred in men or rodents shall be detained in quarantine, the sick, if any, shall be removed and isolated, and the destruction of rats shall be effected as soon as practicable.* † [Par. 94]

11.162 Fumigation of plague-infected ships; preventing escape of rats. A plague-infected ship shall be fumigated simultaneously in all parts for the destruction of rats, including those that may be within articles of cargo, and other precautions shall in the meantime be observed to prevent the escape of rats from the ships.* † [Par. 95]

(11.162 Fumigation of plague-infected ships. A ship from a plague-infected port shall be fumigated simultaneously in all parts if inspection reveals the presence of rats, or if a person has contracted plague after more than seven days has elapsed since the ship left an infected port, or if cargo was loaded at an infected port and appears likely to harbour or to have harboured rats. Prior to fumigation precautions shall be observed to prevent the escape of rats from the ship.* † [Par. 95])

11.163 Detention of sick persons. All persons sick of plague shall be detained in quarantine until well, but no detention of healthy contacts is contemplated (except in the pneumonic type of the disease) other than is incidental to the treatment of vessels or cargo.* † [Par. 97]

11.164 Measures in case of pneumonic plague on board ship. If pneumonic plague has occurred on board ship during the voyage, the (those) sick (with it or suspected of having it) shall be removed and isolated, and all crew and passengers that have been exposed to the infection shall be detained in quarantine for a period of 7 days, (.) or, at the discretion of the quarantine officer, until their secretions shall be proved to be free from B. pestis.* † [Par. 98]

11.165 Freedom from rats and vermin. The quarantine officer, before granting pratique to a vessel that has been detained in quarantine on account of plague infection, shall assure himself that the vessel is free from rats and vermin.* † [Par. 99]

11.166 Personal effects. The personal effects in use, and the belongings of crew and passengers, which in the opinion of the quarantine officer are considered as infected, shall be disinfected and rendered free from vermin.* † [Par. 100]

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

1. The above information was obtained from the records of the [redacted] and is being furnished to you for your information.

11.167 Entry of certain vessels subject to provisional pratique. Vessels from ports (foreign, insular, or domestic) that are known or suspected of being infected with plague may, when loaded with cargo, the nature of which or manner of storage precludes effective fumigation, be permitted to enter subject to the terms of a provisional pratique. When lying alongside wharf or dock at United States ports such vessels shall take proper precautions to prevent the passage of rodents. The vessel shall be fended off from wharf or deck not less than 4 feet, and on all connecting lines shall be fixed rat guards of sheet metal of an approved design, not less than 3 feet in diameter. All cargo nets and similar devices extending between the vessel and shore structures shall be removed at night unless in actual use, as likewise gangways and similar devices extending between the vessel and shore structures shall be removed at night unless in actual use, as likewise gangways and ladders unless guarded. Any vessel so entering and neglecting to effectively apply such measures, may, at the discretion of the Surgeon General (quarantine officer), be remanded to the quarantine station for discharge of cargo, or required to discharge cargo at anchor well removed from the wharf.*† [Par. 101, amdt. 9, Mar. 21, 1925]

11.168 Fumigation of certain vessels required. Vessels from ports known to be infected with plague, in man or rodents, which have deeked or which have not taken precautions necessary to prevent the ingress of rats, and on which effective measures have not been taken to destroy the same under the supervision of an accredited medical officer of the United States Government, shall, upon arrival at a port in the United States, be fumigated for the destruction of rats.*† [Par. 102]

11.169 (8) Periodic fumigation. All vessels engaged in trade with foreign ports shall be fumigated not less than once every 6 months for the purpose of destroying rats. This is best done when the vessel is empty; Provided, That the Surgeon General may prescribe rules under which the 6-month period between fumigations may be extended for: (a) Vessels plying regularly between ports not infected with plague; (b) Vessels whose construction does not favor the harborage of rats; ((c) When ship inspection does not reveal the necessity for fumigation.) *† [Par. 103, amdt. 10, Feb. 8, 1926]

11.170 (69) Fumigation certificate. A certificate signed or vised by an accredited medical officer or a consular officer of the United States may be accepted by the quarantine officer as competent evidence in considering the enforcement of 11.169, except when otherwise directed by the Surgeon General. Fumigation certificates to be acceptable must contain the same, or substantially as complete, information as contained in "Certificates of Fumigation, U. S. Public Health Service," Form 1939 or Form 1945.*† [Par. 104, amdt. 5, Jan. 16, 1923]

11.171 (70) Method of fumigation. In applying plague preventive measures, vessels without cargo shall be fumigated simultaneously in all

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

11.1.1. The purpose of this section is to provide a framework for the assessment of the impact of the proposed project on the environment. The assessment will be carried out in accordance with the provisions of the Environmental Impact Assessment Act, 1989. The assessment will be carried out in accordance with the provisions of the Environmental Impact Assessment Act, 1989. The assessment will be carried out in accordance with the provisions of the Environmental Impact Assessment Act, 1989.

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parts with sulphur dioxide gas, not less than 3 pounds per 1,000 cubic feet for 6 hours' exposure; or by hydrocyanic acid gas in the proportion of 5 (2) ounces of sodium cyanide per 1,000 cubic feet of space (or equivalent amount of potassium cyanide) for 2 (to 4) hours. If the vessel be loaded, the time of exposure shall be doubled.* † [Par. 105]

11.172 (1) Partial discharge of cargo may be required. When necessary in the treatment of infected vessels, the quarantine officer may require the master to partially discharge cargo for the purpose of effective performance of fumigation.* † [Par. 106]

SMALLPOX: SPECIAL MEASURES AT FOREIGN AND INSULAR PORTS

11.181 Incubation period. For the purpose of the regulations in this part, 14 days shall be considered as the incubation period of smallpox.* † [Par. 107]

11.182 Evidence of immunity or vaccination by passengers and crew; baggage. Passengers and crew coming from districts where smallpox prevails in epidemic form, or who have been exposed to smallpox, should be vaccinated before (refused) embarkation, unless they show satisfactory evidence of having acquired immunity to smallpox by previous attack, or successful vaccination within 1 year, (and previous to 14 days), and their baggage inspected and, if necessary, disinfected.* † [Par. 108]

SMALLPOX: SPECIAL MEASURES AT PORTS OF ARRIVAL

11.191 Treatment of vessels with disease on board. Vessels arriving with smallpox on board, or having had smallpox on board during the voyage, shall be treated as follows:

- (a) The sick shall be removed and detained (isolated) until recovered.
- (b) All persons who in the opinion of the quarantine officer have been exposed to the infection shall be vaccinated, unless protected by a previous attack of smallpox, and (kept under surveillance) detained in quarantine until the vaccination is protective against said exposure (or immunity is demonstrated), or, if they refuse vaccination, detained in quarantine for 14 days after last exposure to the infection.
- (c) Those persons that have not been exposed to the infection may be released.

(d) All personal effects of passengers and crew that have been exposed to infections shall be disinfected. All compartments that have been exposed to the liability of infection shall be disinfected.* † [Par. 110]

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

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TYPHUS: SPECIAL MEASURES AT FOREIGN AND INSULAR PORTS

11.201 Incubation period. For the purpose of the regulations in this part 12 days shall be considered as the period of incubation for typhus fever.*† [Par. 111]

11.202 Passengers and crew from infected ports; personal effects. Passengers and crew from ports infected with typhus shall not be allowed to embark unless demonstrably free from vermin, or otherwise treated for the destruction of vermin. (In the event of an epidemic, evidence of valid immunization should be presented.) The personal effects, wearing apparel, and baggage of those infested with vermin shall be disinfected.*† [Par. 112]

11.203 Passengers from infected localities. Passengers from localities where typhus prevails embarking at a port not infected with typhus shall be treated as in § 11.202.*† [Par. 113]

11.204 Passengers and crew previously exposed to infection. Passengers and crew who, in the opinion of the inspecting officer, have been definitely (directly) exposed to infection ((i.e.,) from a house, barracks, or other building in which has occurred a case of typhus) shall not be allowed to embark until 12 days after removal from the infected environment (or unless evidence of valid immunization prior to exposure is presented, or twelve (12) days has elapsed following immunization.)*† [Par. 114]

TYPHUS: SPECIAL MEASURES AT PORTS OF ARRIVAL

11.211 Vessels on which infection has occurred. Vessels on which typhus infection has occurred shall be detained in quarantine and the sick, if any, removed and isolated. The clothing, personal effects, and baggage of those infected and of those not demonstrably vermin free shall be treated for the destruction of vermin.*† [Par. 115]

11.212 Vermin-infested persons. All persons found to be vermin (louse) infested shall be treated for destruction of lice.*† [Par. 116]

11.213 Observation of exposed passengers and crew. All passengers and crew that have been exposed to the infection shall be detained under observation (kept under surveillance or unless evidence of valid immunization prior to exposure is presented, or twelve (12) days has elapsed following immunization) for a period of 12 days from last exposure to infection.*† [Par. 117]

11.214 Release of personnel. Those of the personnel that are demonstrably free from vermin, and have not been exposed to the infection, may be released without detention or disinfection of baggage.*† [Par. 118]

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

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11.04. The following points for the purpose of the investigation of this case is being made as per the list of investigation.

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11.06. The following points for the purpose of the investigation of this case is being made as per the list of investigation.

11.07. The following points for the purpose of the investigation of this case is being made as per the list of investigation.

11.08. The following points for the purpose of the investigation of this case is being made as per the list of investigation.

11.09. The following points for the purpose of the investigation of this case is being made as per the list of investigation.

11.10. The following points for the purpose of the investigation of this case is being made as per the list of investigation.

11.215 Detention and fumigation of vessels. Vessels on which typhus has appeared shall be detained and fumigated for destruction of vermin, (including rats). * † [Par. 119]

11.216 Cargo compartments. Cargo compartments of typhus-infected vessels need not be fumigated, unless there be exceptional conditions that may render them vermin infested. * † [Par. 120]

11.217 Fumigants (and Insecticides.) (For the destruction of lice and fleas, fumigants or insecticides, approved by the Surgeon General, shall be used.) Sulphur dioxide and hydrocyanic acid gas are effective agents for the destruction of lice when used in proper strength and exposure. * † [Par. 121]

LEPROSY: SPECIAL MEASURES

11.221 Embarkation of alien lepers for United States prohibited. Alien lepers should not be permitted to embark at a foreign port for a port of the United States, its possessions or dependencies, either as a passenger or as a member of the crew. * † [Par. 122]

Cross References: For interstate quarantine regulations relating to the travel of lepers, see § 12.5. For regulations of the Immigration and Naturalization Service relating to the procedure of deportation of aliens afflicted with leprosy, see 8 CFR 20.5.

11.222 Vessels arriving with disease on board. Vessels arriving in quarantine with leprosy on board shall not be granted pratique until the leper and his baggage has been removed from the vessel to the quarantine station. * † [Par. 123]

11.223 Landing of alien leper prohibited. No alien leper shall be permitted to land, and to this end the case shall be certified as a leper and reported to the nearest commissioner of immigration. * † [Par. 124]

ANTHRAX AND OTHER DISEASE ORGANISMS: SPECIAL MEASURES

11.231 Hair or bristles made into shaving or lather brushes for shipment into United States. Shaving brushes or lather brushes destined for shipment into the United States shall be made only from hair or bristles, known to be free from anthrax spores. * † [Par. 126]

Note: Sections 11.231-11.233 contemplate that anthrax is primarily a disease of animals; that the infection in man is comparatively rare and under such circumstances is not transmitted from man to man. Inasmuch as the infection tends to spread only as an epizootic disease, the responsibility for its exclusion and regulations of that Government agency

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

appear to be sufficient for their purpose, and the requirements contained herein are merely for the additional protection of persons against possible infection from any animal product in such widespread and everyday use as the shaving brush.

Cross Reference: For Bureau of Animal Industry regulations relating to the importation of wool, hair and bristles in the prevention of anthrax, see 9 CFR 95.10, 95.11.

11.232 (Substitute Amendment #21) Disinfection of hair or bristles: Unless known to be free from anthrax spores such hair or bristles, before being made into shaving or lather brushes, shall be disinfected by one of the following methods: (a) by boiling for not less than 3 hours; (b) by exposure to steam under not less than 15 pounds gauge for not less than 30 minutes with a preliminary vacuum of at least 10 inches; (c) by exposure to streaming steam for not less than 6 hours.*† [Par. 127]

11.233 (Insert Amendment #18) Consular certificate to accompany consignment of foreign shaving brushes: Consignments of shaving brushes of foreign manufacture shall be accompanied by a consular certificate containing a statement as to the prevalence or nonprevalence of anthrax in the territory from which the brushes emanate and also to the effect that the materials entering into the manufacture of the brushes have or have not complied with the requirements of the regulations in this part.*† [Par. 128]

11.234 Living disease organisms and vectors—(a) Permit for admittance of cultures, infected insects, animals, or plants required. No culture of bacteria, or any living virus or collection of organisms, that causes or may cause any contagious or infectious disease, nor any insect, animal, or plant infected with such bacteria, virus, or organism, shall be admitted into the United States without a specific permit issued by the Surgeon General of the Public Health Service.

(b) Permit for admittance of insects, animals, or plants capable of transmitting contagion required. No living insect, animal, or plant, new to or not theretofore widely prevalent or distributed within and throughout the United States, which is potentially capable of transmitting any contagious or infectious disease, shall be admitted into the United States without a specific permit issued by the Surgeon General.

(c) Issuance of permit; release from customs custody. The Surgeon General may, in his discretion, issue a permit as specified in paragraphs (a), (b) when proper safeguards are set up to protect the public. No article or thing coming within the provisions of paragraphs (a) or (b) shall be released from customs custody prior to the receipt by the collector of customs of a permit therefor issued by the Surgeon General, which permit shall specify the name and address of the consignee of such article or thing.

See note to § 11.231.

*For statutory citation, see note to § 11.12.

For source citation, see note to § 11.1.

(d) "Parrot regulations" continued in force. The provisions of paragraphs (a)–(c) shall not apply to birds of the parrot family, as defined in 16.1–16.4, which regulations, approved December 20, 1933, shall continue to govern the importation of such birds of the parrot family.* [Pars. 128–A to 128–D, amdt. 17, Mar. 4, 1938, 3 F.R. 355]

Cross References: For regulations relating to parrots, see 12.17 and Part 16. For Public Health Service regulations relating to the importation of viruses, serums, and toxins, see Part 22. For Department of Agriculture regulations relating to the importation of adult honey bees, plants, or plant products by mail, see 7 CFR Parts 321, 322. For Bureau of Animal Industry regulations relating to viruses, serums, toxins, and analogous products, see 9 CFR Parts 100, 102, 108–121, 131. For customs regulations relating to the importation of viruses, serums, and toxins, see 19 CFR 10.15–10.18. For Bureau of Customs regulations relating to parrots imported into the United States, see 19 DFR 10.23.

BORDER QUARANTINE

11.241 Inspection of travelers at Canadian and Mexican ports. When necessary, travelers arriving at Canadian or Mexican ports, destined for the United States, shall be inspected at the Canadian or Mexican port of arrival by the United States consular or medical officer, and be subjected to the same sanitary restrictions as are called for by the rules and regulations applicable at foreign ports.*† [Par. 129]

Cross Reference: For quarantine regulations applicable at foreign ports for prevention of cholera, yellow fever, plague, smallpox, typhus, leprosy, anthrax, see §§ 11.101–11.108, 11.131–11.133, 11.151–11.154, 11.181, 11.182, 11.201–11.204, 11.221, 11.231–11.233.

11.242 Maritime quarantine to be applied. Where not otherwise specifically stated, the rules and regulations for maritime quarantine shall be applied at stations on the Canadian and Mexican frontiers; and the methods of disinfection shall be those prescribed in the regulations in this part.*† [Par. 130]

11.243 Mexican citizens on temporary visit. In order to facilitate the entry of native-born and naturalized citizens of Mexico, desirous of temporarily visiting the United States, the Department of State and the Department of Labor have arranged, for immigration purposes, to have American consular officers in the interior of Mexico issue to them border identification cards which bear photographs and signatures of the holders. It is understood that these cards will be issued by American consular officers only to bona fide visitors for business or pleasure who at the time of issue are apparently free from any communicable disease and have either previously had smallpox or have been successfully vaccinated against this disease.

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

Quarantine officers are authorized to pass the owners of these consular cards of identification upon presentation at the port of entry on the Mexican border provided they show no visible evidence of quarantinable disease.* [F.Q. Div. circ., Surg. Gen., Apr. 11, 1934, approved Sec. Treas. Apr. 12, 1934]

11.244 Denial of entry or observation of infected persons. If any person be found suffering from a quarantinable disease, or be presumably infected, he shall be denied entry (except that a citizen of the United States may be permitted to enter under provisions applicable to maritime ports.) or shall be kept under quarantine observation so long as danger of conveying the infection exists.*† [Par. 131]

11.245 Infected baggage. Any baggage or other effects believed to be infected shall be refused entry unless disinfected in accordance with the regulations in this part.*† [Par. 132]

11.246 Persons from cholera-infected localities. Persons coming from localities where cholera is prevailing shall not be allowed entry until they have been proven to be free of cholera vibrios, by laboratory examination, or otherwise detained 5 days.*† [Par. 133]

11.247 Persons from yellow fever-infected places. During the active quarantine season persons not positively identified as immune to yellow fever, coming from places where yellow fever prevails, will not be permitted to enter until they have been away from said locality 6 full days, or otherwise held in quarantine to complete 6 days.*† [Par. 134]

11.248 Persons from smallpox-infected localities. Persons coming from localities where smallpox is prevailing shall not be allowed entry without vaccination, unless they are protected by a previous attack of the disease or a recent successful vaccination.*† [Par. 135]

11.249 Persons from typhus-infected localities. Persons coming from localities where typhus fever prevails shall not be allowed entry unless demonstrably free from vermin or otherwise disinfected for the destruction of vermin. Disinfection of wearing apparel, baggage, and personal effects for the destruction of vermin shall be practiced when necessary.*† [Par. 136]

11.250 (46) Infected common carriers. No common carrier which is infected, or suspected of being infected, shall be allowed to enter the United States until after such measures have been taken as will render it safe.*† [Par. 137]

11.251 (47) Merchandise, personal effects. Articles of merchandise, personal effects, etc., which are presumably infected, shall not be allowed entry into the United States until after disinfection.*† [Par. 138]

*For statutory citation, see note to § 11.12.

†For source citation, see note to § 11.1.

11.259 (43) Entry of persons from countries where quarantinable diseases reported. Persons shall not enter the United States from countries where any of the quarantinable diseases are reported excepting at ports of entry, and after inspection by a quarantine officer and such necessary treatment as indicated in the foregoing sections.*†
[Par. 139]

FEES AND ENFORCEMENT

11.261 Visitation of vessels. The Surgeon General, or the officer detailed by him as inspector, shall, at his discretion, visit any incoming vessel or any vessel detained in quarantine with a view to certifying, if need be, that the regulations have been or are being enforced.*†
[Par. 145]

11.262 Remanding of vessels to quarantine stations. The Surgeon General of the Public Health Service is authorized, when in his discretion such action is necessary in the interest of the public health, to remand, by direction of the Secretary of the Treasury, any vessel to the nearest quarantine station provided with proper facilities for handling infected vessels.*† [Par. 146]

11.263 Seized vessels. In case a vessel requiring quarantine inspection is seized prior to having passed quarantine inspection, it will be immediately towed or convoyed to a quarantine station for quarantine inspection preliminary to any other disposition. The towing or conveying vessel shall become constructively in quarantine and shall be subject to quarantine inspection and any necessary quarantine measures.*
[Dept. circ. 391, Nov. 11, 1927]

11.264 Rates to be charged vessels for quarantine services. The following rates to be charged vessels for quarantine services at national quarantine stations are hereby prescribed:

(a) Inspection services:

(1) Inspection of vessels (including crews and not more than 10 passengers):

(1) Under 500 net tons-----	\$5.00
(11) Over 500 and less than 5,000 net tons-----	10.00
(111) Over 5,000 net tons-----	15.00

(2) Inspection of passengers:

(1) Over 10 and less than 100-----	5.00
(11) Each additional 100 or fraction-----	3.00

(3) Surcharge for inspection after sunset (except vessels in distress)----- 25.00

(b) Detention services:

*For statutory citation, see note to § 11.12.
For source citation, see note to § 11.1.

- (1) Subsistence, housing, and medical care:
- (i) Cabin passengers and ships officers, per day or fraction----- \$3.00
 - (ii) Steerage passengers and crew, per day or fraction----- 2.00
 - (iii) One-half rates will be charged for housing and medical care only (i. e. when ship furnishes subsistence).
 - (2) Vaccination, per person----- .25
 - (3) Special bathing, or delousing, per person----- .25
 - (4) Disinfection of personal baggage and effects, per piece----- .25
 - (5) No charges will be made for detention services for beneficiaries of Public Health Service.

(c) Fumigation services:

- (1) Fumigation:
- (i) Chemicals, per 1,000 cu. ft. of space----- .12
 - (ii) Supervision----- 5.00
 - (iii) Labor, per hour per man----- .50
 - (iv) Transportation (to places other than Quarantine Anchorage)-----actual pro rata cost
 - (v) Loss of, or damage to, equipment-----actual replacement cost
 - (vi) Surcharge for Sunday or legal holiday service (except vessels held in detention)----- 50%
 - (2) Quarantine guards (at places other than Quarantine Anchorage) each, per day----- \$5.00
 - (3) Deratization exemption inspections (including inspections for extension of certificate) except when made under 500 net tons by the medical officer as part of inspection services----- 10.00

(d) Transportation shall be charged for at the actual (mileage) cost to the Government when transportation is made overland. When made on Government station launch or tug, charges will be based pro rata upon daily operating cost of such vessel. Transportation and labor charges will be computed from hour of departure from station to time of return to station. Charges made for loss of or injury to equipment will depend upon the character of equipment and the amount of loss or extent of damage, and shall be based on the market value of such items.

(e) Special services for which surcharge is made (night boarding, holiday fumigations, etc.) will only be performed upon written request of the responsible agents of the vessel, and all charges rendered to collectors of customs for special services shall record the name and address of the responsible agent and the date of request upon reverse of statement form.

(f) Charges for quarantine services will not be made when rendered to armed vessels of foreign nations or to vessels owned by the United

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States or by individual States of the Union; such vessels should furnish necessary subsistence.

(g) These rates shall be effective on April 15, 1928, and thereafter until changed. Quarantine officers upon the completion of services rendered shall immediately compute the total cost thereof and send a statement to the collector of customs at the port where the vessel enters. One copy of all such statements shall be forwarded by quarantine officers to the Bureau of the Public Health Service on the same date, without letter of transmittal.

(h) Collectors upon receipt of such statement will require payment of the charges by the master or agent of the vessel and will account for the amounts collected under the item "Fees for Quarantine Services." (Sec. 1, 40 Stat. 6, sec. 16, 46 Stat. 1492; 42 U.S.C. 87, 94b) [Dept. circ. 398, Mar. 30, 1928, smdt. 1, Nov. 30, 1936, 1 F.R. 2090]

United States Public Health Service, Foreign Quarantine Division, Un-
numbered Circular June 9, 1937

Par. 4, Change "nine" to "six"

Par. 7, This paragraph should be re-written in conformity
with Foreign Quarantine Div. Circ. 77, revised.

QUARANTINE OF AIRCRAFT

Sections 11.501 to 11.512 deal with various matters concerned with certain basic laws of the United States and definitions of terms used in this code. Regulations also are to be found governing landing requirements, advance notice of arrival, permission to discharge or depart, emergency or forced landing, clearance of aircraft of scheduled airlines, documents of entry, documents of clearance, residue cargoes, etc. No particular changes need be made in these sections and hence the Commission has confined itself to regulations in the paragraphs following.

11.513 Public health requirements.—(a) Release by Public Health Service.—No passengers or persons employed on board any aircraft arriving from any place outside the United States or landing in an area from another area shall be permitted to leave the aircraft at the place of first landing or the airport of entry in the United States except by authority of the quarantine officer assigned thereto. Such aircraft and any mail, baggage, cargo, or other contents on board shall be held at such place or airport until released by such officer. * * *

(b) Special sanitary treatment.—Any aircraft arriving from any foreign port or place which the quarantine officer declares to be of such menace that it cannot be adequately or safely handled at the airport of first or intended landing shall be required (requested) to

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proceed with all passengers and persons employed on board and all mail, baggage, cargo, or other contents on board, as may be designated by such officer, to an airport indicated by such officer to have adequate facilities for such treatment as shall be prescribed by him.

(c) Entries in journey log book of arriving aircraft.—Any aircraft departing for the United States from any place outside thereof shall have entered in the journey log book¹ statements as to the occurrence of plague, cholera, yellow fever, typhus fever, and smallpox in the country from which the aircraft departed and in countries in which landings are made en route. There also shall be entered in the journey log book statements as to any sanitary measures undergone before departure or at such landings. These statements shall be verified and signed by the officers in charge of the airports from which the aircraft departed and at which it landed en route. In occurrence of any sickness among the passengers and persons employed on board and as to any sanitary treatment performed en route.

(d) Spraying of arriving aircraft.—Any aircraft bound for the United States, from any (port separated by ocean or sea, or from any place south of middle Mexico) place in South America or tropical Africa, or from any other region where yellow fever may appear, shall be sprayed during flight with an insecticide approved by the Surgeon General of the Public Health Service. The spraying shall be performed as soon as possible after departure from the last foreign port, in accordance with such method as may be prescribed by the Surgeon General of the Public Health Service. The same provision applies to aircraft bound for the mainland of the United States from any United States insular port.

(e) Statement of whereabouts of passengers and crew.—(Any person) The commander of any aircraft arriving in the United States (by aircraft) from any place in the Western Hemisphere located within the region bounded by 30 degrees south latitude and 15 degrees north latitude, or from any place in the African Continent located within the region bounded by 12 degrees south latitude and 16 degrees north latitude, or from any other place where yellow fever may appear, shall (may be required to) furnish the quarantine officer with a written statement showing the (his) whereabouts of all passengers and members of the crew for a period of 6 (14) days prior to embarkation for (arrival in) the United States (and an acceptable statement of his immunity and his immunization against quarantinable diseases.)

(f) Importations of living disease organisms and vectors, shaving brushes, and parrots.—Importations of living disease organisms and

¹For this purpose, a journey log book is any document or book containing the following information: (1) nationality and identification marks of aircraft; (2) name and address of owner of aircraft; (3) name and address of commander of aircraft; (4) point of origin; (5) point of ultimate destination; (6) place and time of departure on trip; (7) intermediate stops and time of arrival at each stop; and (8) remarks; signed by the aircraft commander.

vectors,² of shaving or lather brushes,³ and of birds of the parrot family⁴ are subject to the special regulations prescribed therefor.

(g) Entries in journey log book of departing aircraft.—Any aircraft clearing from any area for any place outside the United States may obtain from the quarantine officer for entry in the journey log book information regarding the occurrence of plague, cholera, yellow fever, typhus fever, and smallpox in the area (local zone).

(h) General provisions.—Except as otherwise provided in the regulations in this part (11.501 to 11.516, inclusive), aircraft and the passengers and merchandise and baggage carried thereon, arriving from any place outside the United States, shall be subject to the United States quarantine laws and regulations applicable to vessels so arriving, insofar as such laws and regulation are applicable to aircraft.

11.514 General provisions; Entry and clearance.—All navigation laws and regulations to the entry and clearance of vessels shall apply to civil aircraft to such extent and upon such conditions as are specified in the regulations in this part.

11.515 Penalties.—(a) Relates to violations of customs regulations and has no bearing on quarantine.

(b) Any person violating any public health regulation relating to aircraft or any provision of the public health laws or regulations made applicable to aircraft by 11.513 shall be subject to a civil penalty of \$500, and any aircraft used in connection with such violation shall be subject to seizure and forfeiture, as provided for in the public health laws and section 11 (b) and (c) of the Air Commerce Act of 1926 (49 U.S.C. 181 (b), (c)). Such penalty and forfeiture may be remitted or mitigated by the Federal Security Administrator.

(c) Relates to violations of regulations of the Department of Commerce and has no bearing on quarantine.

(d) Relates to violations of immigration regulations and has no bearing on quarantine.

(e) Liability to penalties with respect to any one of the sets of laws, i. e., the customs laws, the public health laws, the entry and clearance laws, and the immigration laws, under which the regulations in this part are prescribed, shall be separate from such liability with respect to any other set of such laws.

²Living disease organisms and vectors; Amendment No. 17 to Quarantine Regulations of the United States, March 4, 1938; Federal Register, March 10, 1938, p. 555.

³Brushes: Amendment No. 18 to Quarantine Regulations of the United States; Federal Register, March 22, 1939, p. 1287.

⁴Parrots: Executive Order 5264, Jan. 24, 1930; Foreign Quarantine Division Circular No. 67 and amendments; Federal Register, May 3, 1939, p. 1766.

11.316 Airports of entry.--(a) Airports of entry will be designated after due investigation to establish the fact that a sufficient need exists in any particular district or area to justify such designation and to determine the airport best suited for such purpose.

(b) A specific airport will be designated in each case rather than a general area or district which may include several airports.

(c) The designation as an airport of entry may be withdrawn if it is found that the volume of business clearing through the port does not justify maintenance or inspection equipment and personnel, if proper facilities are not provided and maintained by the airport, if the rules and regulations of the Federal Government are not complied with, or if it be found that some other location would be more advantageous.

(d) Airports of entry shall be municipal airports, unless particular conditions which prevail warrant a departure from such requirement and shall be possessed of a currently effective designation as a "Designated Landing Area" issued by the Administrator of Civil Aeronautics. Additional requirements may be imposed as the needs of the district or area to be served by the airport may demand.

(e) Airports of entry shall provide without cost to the Federal Government suitable office and other space for the exclusive use of Federal officials connected with the port. A suitable surfaced loading area shall, in each case, be provided by the airport at a convenient location with respect to such office space. Such loading area shall be reserved for the use of aircraft entering or clearing through the airport.

(f) Airports of entry shall be open to all aircraft for entry and clearance purposes and no charge shall be made for the use of said airports for such purposes. However, in cases where airports of entry authorize any such aircraft to use such airports for the taking on or discharging of passengers or cargo, or as a base for other commercial operations or for private operations, this paragraph shall not be interpreted to mean that charges may not be made for such commercial or private use of such airports.

(g) All aircraft entering or clearing through airports of entry shall receive the required servicing by airport personnel promptly and in the order of arrival or preparation for departure without discrimination. The charges made for such servicing shall in no case exceed the schedule of charges prevailing at the airport in question. A copy of said schedule of charges shall be posted in a conspicuous place at the office space provided for the use of Federal official connected with the port.

(h) Airports of entry shall adopt and enforce observance of such requirements for the operation of airports, including airport rules, as may be prescribed or recommended by the Civil Aeronautics Authority.

(R.S. 161, 251; sec. 644, 46 Stat. 761; sec. 7, 44 Stat. 572; sec. 5, 27 Stat. 451; sec. 23, 39 Stat. 894; sec. 24, 43 Stat. 166; 5 U.S.C. 22; 19 U.S.C. 66, 1644; 49 U.S.C. 177; 42 U.S.C. 94; 8 U.S.C. 102, 222. Secs. 201 (a), 205 (b), President's Reorganization Plan No. I, sec. 1, President's Reorganization Plan No. V; 4 F.R. 2728, 2729, 5 F.R. 2132, 2223. E.O. 9083, Feb. 28, 1942; 7 F.R. 1609.)

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RECEIVED
The Airport of Entry Regulations approved on October 6, 1931, by the Secretary of the Treasury, the Secretary of Commerce, and the Secretary of Labor, published in T. D. 45174 (19 CFR 4.11), are hereby superseded.

SEAL

Paul V. McNutt,
Federal Security Administrator.

(The above regulations, designated as "Air Commerce Regulations," were signed also by the administrative heads of the Treasury Department, the Department of Commerce, and the Department of Justice.)

Note.--Additional authority for the application of sanitary measures to aircraft is to be found in the International Sanitary Convention for Aerial Navigation (pp. 28 to 41); and in Article 61 of the Pan American Sanitary Code (pp. 42 and 43).

QUARANTINE AND IMMIGRATION MEDICAL INSPECTION OF
PASSENGERS AND CREW OF AIRCRAFT

In the Final Report are found recommendations for processing passengers arriving by aircraft. In general they conform to the process outlined in this section but the committee on revision of regulations of the United States Public Health Service should consult the Final Report - Part I for suggestions on revising this chapter.

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QUARANTINE TREATMENT OF MILITARY AIRCRAFT

Federal Security Agency
U. S. PUBLIC HEALTH SERVICE
Washington

Revised December 20, 1941-
(July 1, 1944)

Foreign Quarantine Division Circular No. 71.

To: Medical Officers in Charge, U. S. Quarantine Stations, and Others Concerned.

Subject: Quarantine Inspection and Treatment of Aircraft of the Military Forces of the United States.

(Quarantine procedures, including disinsectization of military aircraft will be accomplished in accordance with Army regulations 40-210, Army air force regulation 61-3 and Navy Bureau Form Letter No. 28 (revised). These regulations are considered to express the policy of the United States Public Health Service as adapted to military aviation.)

The following measures will be observed in connection with quarantine inspection and treatment of aircraft of the military forces of the United States:

Class I:- In the absence of quarantineable diseases or epidemic conditions at any port of departure or call, flights of military aircraft of the United States may be made nonstop to and from the following areas without quarantine restrictions:

United States
Puerto Rico
Canal Zone
Virgin Islands
Alaska

Canada
Cuba and Bahama Islands
(All other islands of the Caribbean area where U. S. air bases may be established are included.)

Class II:- Flights having contact with other areas.--The officer in charge of the flight should communicate with the quarantine authority in the area where landing is contemplated in ample time to permit this official to be on the field and carry out such procedures as may be indicated:

All personnel on the flight must be confined to the landing field, or to such area as may be designated by the quarantine officer, until released by the quarantine officer.

Disinsectization of aircraft.--Disinsectization procedure may be carried out on the ground immediately prior to the take-off from the last field en route to the United States or immediately after landing on United States soil. Planes coming from areas where yellow fever is endemic or epidemic should be sprayed both on departure from such areas and on arrival in the United States.

(a) Using compressed air spraying mechanism.--All enclosed spaces of the planes must be sprayed with insecticide of a strength not less than standard pyrethrum extract (2 grams pyrethrins per 100 cubic centimeters) using not less than 5 cubic centimeters of the mixture per 1,000 cubic feet of enclosed space. Compartments occupied by passengers and aircraft personnel should be kept tightly closed for at least 2 minutes after the insecticide is introduced.

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(b) ~~Using hand-type spraying mechanism.~~—When a hand-pump type of spray apparatus is used, the quantity of insecticide should be increased to not less than 2 cubic centimeters of the standard pyrethrum extract per 1,000 cubic feet, with the plane closed for not less than 2 minutes.

Special temporary provisions.—For the period of the existing national emergency, the Surgeon General may in his discretion, when requested by the competent military authorities, designate the senior medical officer (p) of an Army or a Navy air base to serve as quarantine officer for the inspection and treatment of military aircraft, (.) carrying only military personnel, which may be proceeding on confidential missions. This delegation of quarantine authority will convey to the military service concerned full responsibility (within these duties) for preventing the introduction into the United States of dangerous communicable diseases and of insect vectors of disease.

THOMAS PARRAN,
Surgeon General.

DISINSECTIZATION OF COMMERCIAL AIRCRAFT

Federal Security Agency
U. S. PUBLIC HEALTH SERVICE
Washington

June 15, 1942.
(Revised July 1, 1944.)

Foreign Quarantine Division Circular No. 77.

To: Medical Officers in Charge, U. S. Quarantine Stations, and Others Concerned.

Subject: Disinsectization of Commercial Aircraft.

1. Incident to the increase of aircraft traffic with foreign areas the danger of the introduction into the United States of exotic insect vectors of disease is greatly increased. In this connection, the Service is especially interested in preventing the introduction of *Aedes aegypti* mosquitoes from areas in which yellow-fever is endemic or epidemic and in excluding the *Anopheles gambiae*, a highly efficient carrier of malaria, which as yet has not appeared in the United States.

2. Under existing circumstances, sole dependence cannot be placed on inspection to determine whether an aircraft has on board living insects capable of transmitting disease and in consequence is in need of disinsectization.

(3. A.) Aircraft arriving in the United States, from any place separated from it by ocean or sea, or from any place south of middle Mexico, shall be disinsectized by one of the following methods: (a). immediately prior to takeoff from the last airport prior to landing in the United States, after the crew, passengers, baggage, and cargo have been loaded, and all openings closed, (b). during flight between the last port of departure prior to landing in the United States and the airport of entry, with all openings closed and ventilation stopped, or (c). upon landing, with all openings closed and ventilation stopped, and the discharge of passengers, crew, baggage or cargo. These provisions will not preclude the departure or entry of a person, not a member of the flight crew, for the purpose of disinsectization or after its accomplishment, provided his entrance or exit is accomplished in a minimum of time.

B). Disinsectization will be accomplished by discharging the equivalent of 0.012 gm. of pyrethrins in freon with oil of sesame for each 1000 cubic feet of cabin, toilet, baggage compartment, and other spaces, to be thoroughly distributed and exposure continued for at least one minute.

C). An entry shall be made in the Journey Log Book of the aircraft certifying over the signature of the pilot that disinsectization has been performed in accordance with the above specifications.

4. Unless the aircraft has been disinsectized as described above no door or hatch shall be opened on landing and no person allowed to depart the aircraft without the permission of the quarantine officer, who shall prescribe the measures of disinsectization required in his discretion. The pilot shall notify the control tower if disinsectization has not been accomplished in accordance with par. 3 above, and it shall be the duty of the tower to so inform the quarantine officer.

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5. No provision of these circulars shall preclude the exercise by the quarantine officer of additional measures for the control of insect vectors if deemed necessary in his opinion.

6. Disinsectization will not be required of aircraft arriving in the United States, its territories or possessions from the following places provided they have not originated in other places, and have not stopped at other places en route under conditions favoring the entrance of insects into the plane, or for longer than the time required for refueling:

United States (Mainland)
Alaska
Canada and adjacent areas
Iceland
Greenland
British Isles

Virgin Islands
North Mexico
Bahamas
Bermuda
Curacao and Aruba
Galapagos Islands

All planes flying into the Territory of Hawaii will be disinsectized.)

3- (a) Aircraft arriving at United States airports located south of 40 degrees north latitude from points on the South American mainland lying north of 30 degrees south latitude or from any point on the African continent will be disinsectized, without preliminary inspection, immediately after the disembarkation of passengers and crew and before baggage, merchandise, and mail are discharged.

(b) When the quarantine officer is informed or has good reason to believe that yellow fever is epidemic in an area from which an aircraft arrives, he is directed to disinsectize all compartments of the aircraft before the discharge of passengers, crew, baggage, merchandise, and mail. No person other than the quarantine officer or the inspector who does the spraying will be allowed on board until disinsectization is completed, and the plane will be kept tightly closed throughout the procedure.

(c) The same treatment shall be applied to aircraft coming nonstop from Africa or any other foreign area which may be designated by the Surgeon General as dangerous on account of the presence of exotic insect vectors of disease.

4. The specifications for disinsectization set forth in Foreign Quarantine Division Circular No. 71 will be applied whenever aircraft are sprayed for the destruction of mosquitoes and other insects.

5. It is not intended that the practice of spraying aircraft in flight be discontinued. Rather its importance is to be emphasized, and operators of commercial aircraft should be encouraged to spray thoroughly as a means of safeguarding passengers and flight personnel on board.

THOMAS PARRAN,
 Surgeon General.

Federal Security Agency
U. S. PUBLIC HEALTH SERVICE
Washington

April 27, 1942

Foreign Quarantine Division Circular No. 78

To: Medical Officers in Charge, U. S. Quarantine Stations, and
Others Concerned.

Subject: Delousing of Infested Passengers and Crew Members.

The formulation of precise directions for delousing infested persons is impracticable because of the diversity of facilities at various quarantine stations. The extent and efficiency of the procedures instituted will depend largely upon the type of equipment available and the ingenuity of station personnel, especially because some of the procedures must be carried out on shipboard.

1. Inspections. Inspections for the presence of lice and nits in hair, clothing, and on the body should be made only under optimum conditions of lighting, either natural or artificial. As much privacy as can be secured should be afforded the subject.

2. Body Infestation.

((a) Insecticidal Powder, etc.

The body should be liberally dusted, with DDT powder, particularly the axillae and pubic areas. The hair of the head should be sprayed with a kerosene solution of DDT.

(b) Bathing, etc.)

Head Lice. When nits or lice are found in the hair of the head, the kerosene emulsion soap* should be applied liberally and rubbed in thoroughly, after which the head should be wrapped in a towel arranged in turban style. The vermicide should remain for 15 to 30 minutes and be followed by a rinse during which the resulting lather is slowly massaged into the hair. Nits should be removed with a fine-toothed comb. Further rinses should be used to remove the remaining lather.

In cases of heavy infestation, the hair of the body and head, except eyebrows, should be clipped close, but the subject's permission must be secured before this measure is undertaken.

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When eyebrows are infested, the emulsion should be massaged into the brows with the forefinger. The eyes should be protected from the vermicide by binding pads of cotton over the eyes during the period of application.

These procedures usually destroy or eliminate head lice and a large proportion of nits. When continued observation is required and reinspection is possible, the process should be repeated daily until complete disinfection is accomplished.

Pubic Lice. Lice in pubic or axillary regions should be removed by shaving the hair, followed by the free use of kerosene emulsion soap over the area.

Body Lice. The subject should be bathed, using kerosene emulsion soap freely, and, if necessary, repeatedly, after thorough rinsing.

*Kerosene emulsion soap for vermicidal use. This is prepared by boiling one part of soap in four parts of water and then adding two parts of kerosene. The resulting jelly, when mixed with four parts of water, makes a liquid soap of effective vermicidal qualities.

3. Infested Clothing. For destruction of lice in clothing, special procedures are required, these depending upon the resources of the station at which the work is to be done.

When apparatus for steam disinfection of clothing is available, this should constitute the method of choice. In the absence of such equipment, it may be possible to arrange with local authorities for the use of apparatus in a hospital or municipal disinfecting plant.

Methods of disinfecting clothing:

- (a) Dusting with DDT powder.
- (b) Fumigation with methyl bromide. Special chambers or bags are required. The amounts of fumigant used must be adjusted to time and temperature.
- (c) Live steam under pressure. (Warning: Articles of or containing leather or rubber are often damaged or destroyed by steam disinfecting. These and other articles likely to be damaged should be treated otherwise.)
- (d) Boiling, for five minutes, of articles of apparel not susceptible of damage by moist heat.

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- (e) Immersion in water-white kerosene for 10 minutes.
- (f) Immersion in 5% compound cresol solution for 30 minutes.
- (g) Fumigation with chloropicrin, using a concentration of 12 ounces to 1000 cubic feet of space for a period of one hour, the temperature being not less than 70 degrees Fahrenheit.
- (h) Fumigation with hydrocyanic acid gas, using a concentration of 6 ounces to 1000 cubic feet of space for a period of one hour.

Special notes regarding fumigation:

Suitable safeguards should surround fumigations. Efficient gas masks should be worn by fumigators. Rubber gloves should be worn when handling chloropicrin.

Fumigations should be performed on shore when suitable equipment is available. It may be necessary to prepare a special leakproof room, box or receptacle in which the clothing may be hung while undergoing fumigation.

Clothing accepted for fumigation should be suitably identified so that it may be returned to the proper owner. Fumigated clothing should be thoroughly aerated and shaken to disperse gas before articles are returned to the owners. In cold weather the application of heat will expedite removal of gas.

In the absence of facilities for carrying out the steps described, or to prevent infestation subsequently, dusting powders are sometimes used. Of these the H.C.I. powder, containing-commercial naphthalene, 96 gms.; creosote, 2 cc.; and ldeform, 2 gms.; is the most widely known; but Moore's powder -- creosote, 1 cc.; sulphur, 0.5 gm.; and talc, 20 gms. -- is less irritating and is said to be six times as effective.

Respectfully,

THOMAS PARRAN

Surgeon General

CVA:NLN

(1467)

R E S T R I C T E D

April 21, 1943

Foreign Quarantine Division Circular No. 83

To: Medical Officers in Charge, U. S. Quarantine Stations and Others Concerned.

Subject: Bills of health issued by Army or Navy port authorities.

1. The security of American lives and American vessels has made it necessary that certain functions, exercised by the Department of State in peace times, be exercised by American military authorities under the present war conditions. Particularly is this true in certain ports of Africa in carrying out the provisions of Section 2 of the Act of February 15, 1893, as amended by Act of February 27, 1921, reading in part as follows:

"Sec. 2. That any vessel at any foreign port clearing or departing for any port or place in the United States or its possessions or other dependencies of any vessel at any port in the possessions or other dependencies of the United States clearing or departing for any port or place in the United States or its possessions or other dependencies shall be required to obtain from the consul, vice consul, or other consular officer of the United States at the port of departure, or from the medical officer where such officer has been detailed by the President for that purpose, a bill of health in duplicate, in the form prescribed by the Secretary of the Treasury, setting forth the sanitary history and condition of said vessel and that it has in all respects complied with the rules and regulations in such cases prescribed for securing the best sanitary condition of the said vessel, its cargo, passengers, and crew; and said consular or medical officer is required, before granting such duplicate bill of health, to be satisfied that the matters and things therein stated are true; and for his services in that behalf he shall be entitled to demand and receive such fees as shall by lawful regulation be allowed, to be accounted for as is required in other cases."

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2. The President, as Commander in Chief of the military forces, has detailed officers to the foreign ports in question to prosecute the war effort completely. Therefore, if the security of American vessels under war conditions demands that certain functions be relinquished by the Department of State and be exercised by the Army or Navy port authorities, this would appear to be a reasonable and substantial compliance with the statute involved.

3. The State Department concurs in this procedure in letter of March 17, 1943, in the following language:

"Since the arrangements made at Casablanca were made with a view to the security of American vessels under war conditions, the State Department perceives no objection to the continuance of such emergency security measures at Casablanca and other ports where similar procedure may later be followed, provided that the United States Public Health Regulations are otherwise complied with by the Army medical officer countersigning the bill of health issued by the army port authority."

4. The Federal Security Agency concurs in the procedure as entered into for the period of the emergency by the military authorities and the Department of State, and it is directed that bills of health signed or countersigned by medical officers of the United States Army or United States Navy and otherwise in correct form, be accepted at ports of entry in the United States by quarantine officers, Collectors of Customs, and others concerned.

(Sgd) THOMAS PARRAN

Surgeon General
United States Public Health Service

APPROVED:

(Sgd) PAUL V. McNUTT

Administrator
Federal Security Agency

HGE:bh

R E S T R I C T E D

Federal Security Agency
U. S. PUBLIC HEALTH SERVICE
Washington

January 10, 1944.

Supplement No. 1 to Foreign Quarantine Division Circular No. 83

To: Medical Officers in Charge, U. S. Quarantine Stations and
Others Concerned.

Subject: Bills of health issued by Army or Navy port authorities.

Foreign Quarantine Division Circular No. 83, dated April 21,
1943, authorizing acceptance of bills of health when signed or
countersigned by medical officers of the United States Army or
United States Navy, is hereby revoked. The Department of State
has recommended this action.

W. F. DRAPER

Acting Surgeon General
United States Public Health Service

APPROVED:

WATSON B. MILLER

Acting Administrator
Federal Security Agency

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Federal Security Agency
U. S. PUBLIC HEALTH SERVICE
Washington
(Bethesda Station)

October 4, 1943

Foreign Quarantine Division Circular No. 85

To: Medical Officers in Charge, U. S. Quarantine Stations and
Others Concerned.

Subject: Treatment of vessels carrying prisoners of war or other
persons from ports or places known or suspected of having
typhus.

During the war emergency, and because of that emergency, it has become necessary to adopt certain measures to prevent the importation of exanthematous typhus into this country. As a result of a conference held with appropriate officials of the Office of The Surgeon General of the U. S. Army and of the War Shipping Administration, the following procedure will be adopted at all Quarantine Stations:

At the port of arrival, any vessels carrying prisoners of war or other persons from a port or place known or suspected of having typhus is to be considered potentially louse-infested and is to be issued a provisional pratique. The provisional pratique must require that the compartments utilized for quarters by the prisoners of war or other persons louse-infested or potentially louse-infested are to be mechanically or otherwise deloused, utilizing fumigation with lethal gases only if especially indicated. At ports of final clearance, vessels arriving under provisional pratique because of the necessity for delousing procedures will not be cleared until certification from the War Shipping Administration, the Army or Navy, has been received that the provisions of the provisional pratique have been complied with.

THOMAS PARRAN

Surgeon General
United States Public Health
Service

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RESTRICTED

UNITED STATES ARMY.

AR-30-1820(15 Nov.,1943)

No changes recommended.

AR 40-205(31 Dec.,1942)(incl. C 1,C 2)

Par. 21 b. (1)- Add sub-paragraph (f) "Use of insecticides."

Par. 25, line 7, delete "and"
line 8, enclose "Verruga Peruviana" in parentheses.

Par. 28 Recommend expansion of this paragraph to include methods of rodent control, or reference to proper source of information.

AR 40-210(15 Sept.,1942) (incl. C 1 to 8)

Par. 2 e. Substitute as follows "Quarantine.-By quarantine is meant the limitation of freedom of movement of persons or animals who have been exposed to communicable disease for a period of time equal to the longest usual incubation period of the disease to which they have been exposed."

Par. 7 e. Insert after "patients", a comma and "carriers"

Par. 10 b. (3) No change is recommended, but note is made of variation from Navy practice.

c. (1) No change is recommended, but note is made that Navy regulations require vaccination to be repeated every four years.

(2) as revised by C 6--No change is recommended, but note is made that Navy regulations require that after one standard course of vaccine a booster dose of 0.1cc. be administered intracutaneously yearly.

Par. 18 a. (3) Insert after "endemic" the words "and/or epidemic".

Par. 20 a. (1) line 2 Delete "and"; change period to comma, and add "lethal temperatures, and dry storage".

Par. 30 Add "In areas where hydatid disease is prevalent, stray dogs should be excluded from stations, and troops warned against handling them. Official dogs and pets should not be allowed to eat unauthorized food".

Par. 41 Delete "to the control of flies, to the disinfection of minor wounds and abrasions of the skin, and".

AR 40-270(21 April,1923) and C 1(22 Dec.,1923)

Par. 2 a. (1) Add " (1) Make special note and report on measures concerned with internationally quarantinable diseases at stations receiving international traffic."

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b.Add " (9) Make special note and report on measures concerned with internationally quarantinable diseases at stations receiving international traffic."

AR 40-275(15 Nov.,1932)

Par. 1.c.(7) Add " including report on measures concerned with internationally quarantinable diseases at stations receiving international traffic."

AR 40-1080(10 Dec.,1943)(incl. C 1)

Par.37 a.Insert after "cholera" the word "smallpox".

Par.38 Line 6 After "importance", insert " or if it includes plague, cholera, epidemic typhus, smallpox, or yellow fever,"

AR 40-2090(15 Spet.1942)

No changes recommended.

AR 55-165(5 Dec.,1942)

Add

"SECTION IV

TRANSPORTATION OF OTHER ANIMALS, INCLUDING BIRDS

The laws and regulations of any country, state, or territory regarding the importation and transportation of animals, including birds and animals for experimental use, will be complied with, and in addition permit for the transportation of animals for experimental use will be secured before shipment, from the proper authority upon request addressed to The Surgeon General. Request for permit will show the species and number of animals, type of cage, source, destination and purpose for which intended, and the nature of any abnormality including any inoculations with organisms which are pathogenic.

Regulations of the United States pertinent to the transportation of animals are issued as follows: for psittacine birds, the U.S.Public Health Service, requiring prior permit; for other wild animals, by the Fish and Wildlife Service of the Dept. of the Interior, requiring prior permit; for swine, ruminant and equine animals, the Bureau of Animal Industry, U. S. Dept. Agriculture, requiring entrance permit. Animals imported contrary to these regulations are subject to seizure and to destruction or to return at expense of the owner.

Although otherwise permissible under these provisions, the transportation of any animal (except as above provided) by military conveyance will not be undertaken without a certificate from a veterinary officer, or approved veterinarian, certifying the freedom of the animal from disease."

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AR 55-350(14 Sept.,1942)

No changes recommended.

AR 55-410(6 Oct.,1942)

No changes recommended.

AR 55-435(1 Sept.,1942)

No changes recommended.

AR 55-445(19 Sept.1942)

No changes recommended.

AR 95-15(3 May,1944)

No changes recommended.

AR 500-50(5 April,1937)

Section II Par.4.f(6) Change "Secretary of the Treasury"
to "Administrator of the Federal Security
Agency".

AR 615-250(24 July,1942)

No changes recommended.

WD. General Orders No.4 (5 May,1941)

Sect.IV No changes recommended.

W.D.Circular No. 78(16 March,1942)

Sect.IV Substitute "as revised" for "February 11,1942"

No.276(1 Nov.,1943)

No changes recommended, except those which have been
suggested in references.

No.164(26 April,1944)

No changes recommended.

W.D.Memorandum No. W850-44(5 April,1944)

No changes recommended.

W.D.AGO Memorandum No.W40-7-43(11 Feb.,1943)

No changes recommended except as may be required following
revision of SGO Circular Ltr. No. 162.

W.D. ASF Memorandum No. S40-10-43(19 June,1943)

No changes recommended.

No. W40-16-43(5 July,1943)

Par. 1, line 2 Delete "grave".

Par. 2, line 2 Following "where" insert "louse-bourne".

Radiogram,AG 720.3(30 Oct.,1943)OB-S(CONFIDENTIAL)

Two minor changes, noted on file copy of radiogram.

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No changes recommended.

W.D., TB MED 14 (3 March, 1944)

No changes recommended.

W.D., S.G.O., Circular Ltr. No. 22 (16 January, 1943)

Par. 6 c Change "1 percent pyrethrins" to "0.4 percent pyrethrins"

Par. 12 Recommend this section be followed by reference to W.D., TB MED 14 (3 March, 1944)

Circular Ltr. No. 33 (2 Feb., 1943)

Par. 2.f.(4) Add "Sulpha" drugs.

g. Add to first sentence "and carriers".

Insert a period after "flies" in second sentence, and delete "and quarantine". Thereafter insert "The patient should be isolated, protected from flies, and those exposed to infection should be quarantined for five days from the last exposure unless previously immunized."

After word "endemic" in first sentence of second unnumbered paragraph insert "and epidemic".

3.c. Use lower case for "aegypti", and after "Philippines", insert "Territory of Hawaii". In third sentence, change "became" to "become".

Par. 9.b. After "United States" insert "in the past".

g. Second sentence, following "depends", insert "chiefly upon not living in proximity to infected natives, and also".

Par. 12.g. After the word "excreta" insert "particularly of natives."

Par. 13.g. Delete "native" and substitute "natives and their"

Par. 18 Substitute "Bartonellosis" for "Oroya Fever". This will change paragraph numbers.

Par. 20.c.(3) Preceding "plague" insert "pneumonic"; delete "on" and substitute "and that cases of bubonic plague may spread infection"

g.(2),(b). Following "squill" insert "or other suitable poisons", and preceding "methyl" insert "sulphur dioxide".

(c) Preceding the last sentence insert "Monitor particularly all rats found dead from no obvious cause".

(e) Change third sentence to read "Trap and poison rats intensively in all areas suspected of infestation, and follow at once with ratproofing and destruction of rat harborage."

h.(1) Delete in first sentence all words following "is" and first three words of second sentence; insert after "disease", "caused by B. pestis".

Par. 23.c. Insert "New Guinea, and Southwest Pacific Area" following "Sumatra".

Par. 24.g.(1).(e) Delete "seven to ten days" and substitute

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"two to four weeks, or whenever the clothing is washed." Add "Clothes impregnated with 1% emulsion will remain louse-free for eight weeks even though washed". Add

"(f) Dry storage for a minimum of 21 days at ordinary temperatures."

Par.24.g.(2) Recommend present provisions of this paragraph be made alternative to spraying the head with a solution of DDT and dusting the clothes and body with DDT powder.

(3) Delete last sentence.

(4) No changes recommended, but note is made of variation from Navy practice.

Par.25.g.(1) Insert after "rats", "and rat fleas" and delete "and", and add "and fumigation" in first sentence.

Par.31.f.(3) Add the following sentence "Chlorination of water to afford 0.2 ppm residual free chlorine for 30 min. will also be effective."

Par.32.g.Add

"(4) Streams and zones bordering them within 60 yards should be avoided during daylight hours."

Par.35.c.Insert "(kissing)" after "cone-nosed".

Par.38.c.Substitute "Uncertain, possibly including "for "By".

g.In second sentence, begin with the word "Cases", and insert "rarely" after this word.

Par.40.b.In second sentence, insert "sparsely", after "be".

g.(1) In second sentence, insert "or epidemic" after "endemic".

(3) (c) Change "ten" to "six".

(d) Change "A.aegypti infected" to "Infected A. aegypti".

(g) Second unnumbered paragraph. Change beginning of third sentence to read "Diesel oil No. 2 or its equivalent, or DDT".

W.D.,S.G.O. Circular Ltr. No.111(5 June,1943)

No changes recommended.

W.D.,S.G.O. Circular Ltr. No. 162(28 Nov.,1942)

This letter is under revision at present, and hence no recommendations are made other than those offered directly to the revisers.

W.D.,O.C.T.,T.C.Circular No.35-7(1 January,1944)

Inclosure 1. Par.1.b.(2) No changes recommended, but attention is called to pending revision of technic due to use of DDT.

(4) Insert after "steam" or other approved methods".

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Appendix.

Section I(1) Change second sentence to read "In the usual delousing procedure, the first may be done by fumigation with methyl bromide gas, storage, heat, or DDT, and the second may be done by dusting with DDT powder and by spraying the head with a special DDT solution".

(2) Delete entire paragraph.

(3) Change last sentence to read "The louse spray is obtainable upon requisition from the quartermaster." Add "Dusting with DDT powder is accomplished by powder blowers with nozzles inserted into sleeves, collar, and trouser legs."

(4) Substitute "the head." for "all hairy parts of the body." Delete fourth and fifth sentences.

Section II(3). Add "or dry storage at ordinary temperatures for 21 days. Dusting with DDT may also be utilized, provided that contact is maintained with the agent for two weeks."

AAF Reg. No. 25-9(28 July, 1942)

Par.1. Insert "typhus" after "smallpox", and delete paragraph after the word "tetanus", substituting therefore " in accordance with S.G.O.Circular Ltr. 162 is amended."

AAF Reg. No. 55-18(7 Feb., 1944)

No changes recommended.

AAF Reg. No. 61-3(4 Oct., 1943)

Recommend complete revision of this regulation. App. Item 28.

AAF Memorandum No. 42(15 January, 1942)

No changes recommended.

Ltr., Headquarters, AAF, Air Surgeon's Office, 28 Nov., 1942, Subject: Medical
No changes recommended.

ATC Regulation No. 25-4(31 Aug., 1943) and No. 25-4A(13 March, 1944)

Section I

Par.1. Insert after the word "are", "mental and physical fitness in accordance with prescribed standards including".

Par.2.a. Add "except that certification of fitness issued by a naval medical officer for naval personnel may be accepted in lieu of examination by a Medical Corps officer."

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Section II

No changes recommended except as may be required following revision of SGO Circular Ltr. No. 162.

No.25-4A

Par.4.c. Delete.

ATC Regulation No. 25-7(11 Jan.,1944)

Par.3.f. Delete "bedbugs".

UNITED STATES NAVY.

U.S.Navy Regulations

Chapter 40, Section 1 No changes recommended.

Chapter 32, Section 1, Art.1133 No changes recommended.

Art.1152 No changes recommended.

Art.1172 No changes recommended.

General Orders

No. 29 No changes recommended.

No.157 No changes recommended.

No.162 No changes recommended.

No.199 No changes recommended.

Manual of Medical Department

Chapter 17, par. 2604 No changes recommended

par. 2605 No changes recommended

par. 2606 Should conform with BuMed Form Ltr.
No. 6(25 July, 1941)

par. 2615 (d) Add information contained in BuMed
Ltr. No. 7

(f) Add information contained in BuMed
Circ. Ltr. 43-111 (26 Dec.,1942)

(a),(b),(c)
(e),(g) No changes recommended.

par. 2664 No changes recommended.

par. 2675 No changes recommended.

par. 2680 No changes recommended.

par. 2694 No changes recommended.

Chapter 18 This chapter deals primarily with
quarantine, bills of health, and disinfection. The regu-
lations contained therein are based on the Code of Regula-
tions of the U.S.Public Health Service at the time of
preparation of the Manual. Since then a number of changes
have been made in the Code, and a special committee of the
U.S.Public Health Service is now preparing further revisions.

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Hence it is suggested no revision of this chapter be made until the Code has been published.

- par. 2834 Should be changed to conform to recommendations contained in App. Item 20.
- par. 2863 Should include reference to use of Discoids.
- par. 2886 Should include reference to aerosol-pyrethrum bombs.
- par. 2884 and remaining paragraphs Should contain reference to the use of methyl bromide, DDT, and storage.

Navy Dept. Bulletins

- 43-1616 Recommended substitution of "Form for Quarantine Report", Appendix Item 19.
- 43-1617 Recommend conformance with new international standard on Annex (E) yellow fever vaccine, which considers valid immunity to extend from 10 days to 4 years after vaccination.
Typhoid immunization: see paragraph 3, Final Report. Part III
Tetanus immunization: see paragraph 3, Final Report. Part III
- 42-2055 No changes recommended, but note is made that this bulletin furnishes an exception to U. S. Public Health Service, Foreign Quarantine Division Circular No. 32. Recommend official clearance with United States Public Health Service.
- 43-2039 No changes recommended, but note is made that U.S. Public Health Service, Foreign Quarantine Division Circular No. 83 which enabled these provisions has been rescinded. The Secretary of Navy has requested the rescission be rescinded.
- 43-1570 It is recommended that 10 days be substituted for 14 days and 4 years for 2 years.
- 43-29 No changes recommended.
- 43-399 No changes recommended.
- 41-2027 When re-issued, recommend inclusion of time factors for validity of yellow fever immunization as recommended for Navy Bulletin 43-1570.
- 41-2029 No changes recommended. Note is made that this regulation requires intracutaneous booster doses in contrast to the Army subcutaneous administration.

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- 41-2030 No changes recommended.
- 42-2087 No changes recommended.
- 42-2089 No changes recommended.
- 42-2090 Recommend complete revision in accordance with App. Item 20.
- 42-51 No changes recommended.
- 42-233 No changes recommended.
- 43-111 No changes recommended. It is assumed that DDT will be substituted for the insecticide referred to in the text.
- 43-325 Recommend modification of statement in last sentence of par. 3 to read "--when in the opinion of The Surgeon General it is deemed advisable."
- 43-661 No changes recommended. Note is made that this regulation requires a two dose vaccination, and booster doses on special occasions only, whereas the Army regulation requires three immunizing doses, a booster dose at the end of one year, and doses on special occasions.
- 43-1312 No changes recommended.
- 43-1143 No changes recommended.
- 44-93 Note is made that vessels having pharmacist's mate aboard are authorized to request and under proper circumstances be granted pratique, in conflict with Code of Regulations, U.S. Public Health Service, and Foreign Quarantine Division Circular No. 32. Further note is made that no provision is specified for the quarantine processing of naval vessels which carry neither medical officer nor pharmacist mate, nor for those from ports which have had quarantinable diseases present.
- 44-534 No changes recommended except that in (d) "14 days" should be changed to "10 days" and "2 years" should be changed to "4 years". Minor differences in these regulations and those of the Army are noted.
- 44-565 No changes recommended.

BuMed News Letter, 1944. Prophylactic Immunizations Required in U.S. Navy

Note is made that certain requirements of this publication differ from those of the Army as noted in above references.

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- P 15 "and Territory of Hawaii" should be added after "Philippines" in 9th line.
- 30 Add, at bottom of page, "Insecticidal Powder--An approved powder is available, and may be dusted into the seams of clothing every two to four weeks providing the clothing is not laundered, not only as a delousing measure, but as a prophylactic against infestation. Clothing impregnated with a 1% solution of DDT will remain lousefree for 8 weeks, even though washed.
"Dry Storage--a minimum of 21 days, at ordinary temperatures."
- 31 Line 1, add following the dash "Spray head with approved solution, and apply DDT powder to body, if available, or--"
Line 10, change "14" to "12".
- 32 Line 7, add, after "rats", and their fleas", and after "ratproofing", add "and fumigation."
- 35 Line 6, after "Queensland" add "New Guinea and Southwest Pacific Area."
- 39 After line 14, add "The patient should be isolated and protected from flies, and those exposed to infection should be quarantined for five days from the last exposure unless previously immunized."
- 42 Line 8, change "10" to "6".
Line 11, transfer the word "infected" to the preceding line after the word "the".
Line 31, substitute "Diesel oil #2 or its equivalent", or DDT" for "Fuel oil".
- 43 Par.2(e) Line 2, after "trap" insert "and poison extensively", and delete "from focus of infection outward until no more plague infection is found" and substitute "in all areas suspected of infection".
Line 3, delete "then trap and poison from periphery to center, and--"
- 53 Under "Prevention", insert after "excreta", "particularly of the natives", and after "materials" insert "earth, etc."
- 57 Add to last par., "Chlorination of water, maintaining a residual of 0.2 parts free chlorine per million parts for 30 min., will also be effective".

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- 61 Add to Par. 2, under "Prevention" "streams and ponds within 60 yards of them should be avoided during daylight hours."
- 64 Par.3, under "Prevention" insert "natives and-" after "with".
- 75 Line 16, change "By" to read "Uncertain, possibly including-"
- 76 Under "Prevention and Control", add "Cases have rarely been reported in persons of the white race".

A Manual of Naval Hygiene, Medical Department, U.S.Navy, Chapter XIV
SPECIFIC MEASURES FOR DISEASE PREVENTION ON BOARD SHIP.

No changes recommended, except in regard to immunizations as already noted above with reference to differences from Army practice, and except the change of "14" days to "12" days for quarantine against typhus fever.

Medical Compend for Commanders of Naval Vessels, 1942

The section on Quarantine, Chapter 9, is based on the Code of Regulations of the U.S.Public Health Service at the time of publication of the compend. Since then some changes of a minor nature have been made in the code and a special committee of the U.S.Public Health Service is at the present time studying further revisions. It is therefore suggested no revision of this chapter be made until the revised code has been adopted.

Attention is directed to more recent quarantine requirements in the Navy, to the use of pyrethrum for disinsectization, and to DDT insect powder.

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INTERDEPARTMENTAL QUARANTINE COMMISSION

Final Report - Part IV

This section consists of a list of items and significant correspondence collected by the Commission and placed on deposit with the Division of Foreign Quarantine, United States Public Health Service. Some items classified as CONFIDENTIAL and SECRET have been indexed and have been deposited with the United States Army, Office of The Surgeon General. The file of the material as a whole has been classified as RESTRICTED.

10 June 1944

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(C) - Confidential; (S) - Secret;

I Q C - Interdepartmental Quarantine Commission

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INTERDEPARTMENTAL QUARANTINE COMMISSION

Final Report - Appendix

10 June 1944

R E S T R I C T E D

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R E S T R I C T E D

Federal Security Agency
U. S. PUBLIC HEALTH SERVICE
Washington 14
(Bethesda Station)

March 26, 1943

MEMORANDUM FOR THE SURGEON GENERAL:

By means of air travel, it is possible to reach practically any point on the earth from any given point within slightly over two days' flying time. This increase in speed of travel, together with the rapidly increasing numbers of arrivals, has posed new problems for the Quarantine Division.

Many of the epidemic diseases that now and in the future may harass our military efforts -- as malaria, typhus, yellow fever, filariasis, plague, and others -- are carried by insect vectors. These vectors can be transmitted great distances during a day's flight. Since Dr. Griffiths demonstrated in 1931 that aircraft can transport living mosquitoes, the Service has had the problem under continued observation to perfect the disinsectization technique and prevent the movement of insects from one section to another by aircraft.

All persons arriving from foreign areas are subject to examination under established quarantine laws. As the air traffic increased, the Service steadily increased its facilities and carried out quarantine procedures on all incoming aircraft.

During the latter part of 1941, it became evident that it was impractical to meet all military aircraft, as many were on confidential missions, often arriving with little or no notice, and it was not feasible to keep Public Health Service quarantine officials on duty in military posts. To meet the situation, 14 Navy and 26 Army senior medical officers at certain military posts have been designated as quarantine officer with its attendant responsibilities.

The movements of aircraft are now such that there is considerable uncertainty as to where they are entering, where they are from, and whether they are in fact being handled properly to prevent the entry of insect vectors of disease, new species of insects, or human cases of the quarantinable diseases. Appropriate representatives of the Army and Navy have shown extraordinary cooperation on these problems, at all times evidencing sincere interest, and have issued strict regulations concerning the handling of aircraft. However, with the far-flung air routes, there is a great deal of uncertainty as to how well these instructions are being carried out and whether or not the instructions

R E S T R I C T E D

issued are adequate to best handle the problems. The following unrelated episodes illustrate the serious potential and actual hazards that have to be considered:

The Anopheles gambiae mosquito was brought to Natal, Brazil, from Africa and became widely disseminated along the northeast coast. After an intensive campaign over a period of several years, this species appears to have been eliminated from Brazil, but the cost has been estimated by one authority as at least 20,000 dead, a quarter of a million persons sick, and a cost of approximately three million dollars to perform the eradication work.

The Anopheles darlingi mosquito was recently discovered in British Honduras and Guatemala. This virulent malarial vector had not previously been identified north of the area around Colombia and Venezuela. (Komp)

The Deinocerites spanius mosquito was reported first around the Brownsville airport sector in 1939, and it is understood this mosquito is now found throughout the Brownsville areas. (It is believed not to be a disease vector.)

The Hawaiian, Gilbert, Midway, Wake, Marshall, and adjacent island areas in the Pacific are free from Anopheline mosquitoes and malaria. It is now known that military planes are bringing into this area Anopheles mosquitoes, all dead according to available reports.

The Islands of Hawaii are free from rabies, and to maintain this status have a rigid 120-day quarantine against animals that are brought into the territory. It has been reported that pilots were bringing in dogs and other animals from the South Pacific Islands and taking them to their quarters without the knowledge of the quarantine officials. This was promptly discontinued upon its discovery.

Transport pilots began bringing parrots from Africa against quarantine regulations. Because of the psittacosis danger, these were promptly sacrificed on arrival, and the practice was discontinued.

It seems an appropriate time for one or more representatives of the Army, Navy, and Public Health Service to travel the principal foreign air routes and inspect the major airports that are now in use and study the situation for the preparation of a report. The following factors should be considered:

- (1) Are prescribed protective measures in fact regularly observed?

- (2) If not, make recommendations to insure adequate conformance with existing regulations.

R E S T R I C T E D

(3) Should emphasis be placed on treatment of the aircraft, sanitation of the airport sectors, or both?

(4) Report on the quarantine laws regularly enforced by various countries as well as the laws on record that may be enforced.

(5) Report on quarantine restrictions to movements of aircraft that may be unnecessary in light of present knowledge.

(6) Report on special measures to prevent the introduction of certain exotic diseases to areas where they do not now exist.

The man-hours and transportation involved in obtaining these data may be repaid many times over in arriving at the best measures for the protection of our military forces and civil population.

(Signed) G. L. DUNNAHO

Assistant Surgeon General
Foreign Quarantine Division

R E S T R I C T E D

April 23, 1943

THE FEDERAL SECURITY ADMINISTRATION
Washington

Dear Mr. Secretary:

The global war has given a great impetus to the use of aircraft in connection with military, naval, and commercial operations. The flying time from remote parts of the world has been reduced until it is now possible for epidemic and tropical diseases contracted in any other part of the world to be transported by travelers to any other part before the condition becomes evident. Insect vectors of yellow fever, typhus, plague, malaria and other infections can be transported by aircraft with equal facility. In recent years there have been reported several instances of the discovery of harmful insects in new areas. An example, with serious health and economic consequences, was the introduction of the Anopheles gambiae mosquito from Africa to Brazil.

Under the quarantine laws of the United States, the Public Health Service has the responsibility of preventing the introduction of certain dangerous communicable diseases into the United States. Since the beginning of the present emergency the medical department of the Army has cooperated actively in enforcing quarantine procedures in respect to ships and aircraft under the control of the War Department. Moreover, quarantine procedures have been devised to meet the new factors developed by the expanding air routes. These measures have been effective up to now but there is an increasing number of unscheduled arrivals of aircraft and occasionally a plane on a confidential mission, or for other reasons, will land at an unscheduled port of entry.

I am advised that this general subject recently has been discussed in detail by the three Surgeons General and that they are agreed in recommending the establishment of an Interdepartmental Quarantine Commission composed of a representative of the Federal Security Agency, of the War Department, and of the Navy Department. Consideration is also being given to asking that a representative of the Department of Agriculture be a member of the Commission. I approve fully of this recommendation of the Surgeons General and if you concur, I will appreciate your appointing a member to represent your department.

It is suggested that the terms of reference and authority of the Commission be substantially as follows:

1. By joint action of the Federal Security Administrator, the Secretary of War, and the Secretary of Navy, an Interdepartmental Quarantine Commission is established, composed of one medical officer from each of the three departments, appointed by the head of the department, and in connection with the duties of the Commission, authorized to represent the head of the department.

RESTRICTED

2. The Commission is instructed to examine into existing quarantine laws, regulations and enforcement procedures, both at ports of arrival in this country and at foreign ports of departure, including sanitary conditions at ports of departure and of craft en route.

3. The Commission will recommend changes or modifications in existing laws, regulations and methods of enforcement which may be deemed necessary to protect the interests of the United States and of our military and naval personnel in other countries against danger of the introduction of quarantinable and other exotic diseases which may threaten military and civilian health and consequently impede the war effort.

4. The Commission is authorized to travel to such places as may be necessary in order to carry out the foregoing duties.

5. The Commission will keep the Federal Security Administrator, the Secretary of War, and the Secretary of the Navy, informed in regard to the program of its studies, will submit a final report and recommendation as soon as practicable, and will perform such other duties as from time to time may be assigned to it by competent authority.

If you wish to discuss the matter further, I shall be glad to talk it over with you.

Sincerely yours,

/s/ Paul V. McNutt

Administrator.

The Honorable,
The Secretary of War,
Washington, D. C.

R E S T R I C T E D

THE SECRETARY OF THE NAVY

Washington

S04 26 203

May 15, 1944

My dear Mr. McNutt:

The Navy Department appreciates and is cognizant of the potential dangers to which the people of the United States, as well as those of other countries, will be exposed if adequate precautions are not taken to enforce the quarantine laws and regulations now extant, and to promulgate additional control measures if deemed advisable.

In accordance with your letter of April 23, 1943, I wish to state I concur with your plans and am heartily in agreement that the Commission should be represented by the Federal Security Agency, the War Department, and the Navy Department, as well as the Department of Agriculture.

Captain T. B. Magath, MC-V(S), U.S.N.R., Bureau of Medicine and Surgery, Navy Department, Washington, D. C., is appointed the Navy's representative on this Commission.

Sincerely yours,

(Signed) FRANK KNOX

Honorable Paul V. McNutt
Administrator, Federal Security Agency
Washington, D. C.

Item 4

DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON

AUG 2 - 1943

From: The Secretary of the Navy.
To : Captain T. B. MAGATH, MC-V(S), USNR.
Subject: Interdepartmental Quarantine Commission.
Reference: (a) SecNav ltr of 15 May, 1943, 504 26 203.

1. By reference (a) you were appointed the Navy representative on the Interdepartmental Quarantine Commission. You will carry out duties in this connection which may be assigned you either through the Office of the Administrator of the Federal Security Agency or the Bureau of Naval Personnel.

2. The Secretary of the Navy has been informed Doctor G. L. Dunnahoo represents the U. S. Public Health Service and Major P. T. Knies, the War Department and that the Commission may, in carrying out its assignments, travel either separately or together. It has been requested by the Surgeons General of the three services and approved by the Secretaries of War and Navy and the Federal Security Administrator, that each of you be directed to inspect the facilities controlled by each service in so far as they are concerned with matters coming under the terms of reference and authority of the Commission, which are as follows:

(1) By joint action of the Federal Security Administrator, the Secretary of War, and the Secretary of the Navy an Interdepartmental Quarantine Commission is established, composed of one medical officer from each of the three departments, appointed by the head of the department, and in connection with the duties of the Commission, authorized to represent the head of the department.

(2) The Commission is instructed to examine into existing quarantine laws, regulations and enforcement procedures, both at ports of arrival in this country, and at foreign ports of departure, including sanitary conditions at ports of departure and of craft enroute.

(3) The Commission will recommend changes or modifications in existing laws, regulations and methods of enforcement which may be deemed necessary to protect the interests of the United States and of our military and Naval personnel in other countries against danger of

the introduction of quarantinable and other exotic diseases which may threaten military or civilian health and consequently impede the war effort.

(4) The Commission is authorized to travel to such places as may be necessary in order to carry out the foregoing duties.

(5) The Commission will keep the Federal Security Administrator, the Secretary of War and the Secretary of the Navy informed in regard to the progress of its studies, will submit a final report and recommendations as soon as practicable, and will perform such other duties as from time to time may be assigned to it by competent authority.

/S/ James Forrestal

May 11, 1943

Administrator,
Federal Security Agency,
Washington, D. C.

Dear Mr. Administrator:

Reference is made to your letter of April 23, 1943, concerning the measures to be taken to prevent the spread of epidemic and tropical diseases by new factors introduced by the war.

The traditional policy of the War Department is to insist upon full compliance with the quarantine laws of the United States. Therefore, I concur in the principle expressed in the plan of procedure as outlined in your letter. However, I feel that paragraph 4 of the plan as outlined should incorporate an additional thought substantially as follows:

"The Commission is authorized to travel to such places as may be necessary in order to carry out the foregoing duties. Travel to and in Theaters of Operation will be coordinated with and subject to the control of the Theater Commander concerned."

Lieutenant Colonel Karl R. Lundeborg, Medical Corps, Office of The Surgeon General, is designated to represent the War Department on the projected Interdepartmental Quarantine Commission.

It is my opinion that a specialist from the Department of Agriculture should also be included in the Commission.

Sincerely yours,

/s/ Henry L. Stimson,

Secretary of War.

R E S T R I C T E D

Administrator,
Federal Security Agency,
Washington, D. C.

Dear Mr. Administrator:

On 11 May 1943, Lieutenant Colonel Karl R. Lundeborg, Medical Corps, Office of The Surgeon General, was designated to represent the War Department on the Interdepartmental Quarantine Commission. Due to the pressure of his duties in the Office of The Surgeon General, he is unable to continue on this duty, which is a full-time job.

Major Philip T. Knies is designated to represent the War Department vice Colonel Lundeborg.

Sincerely yours,

Secretary of War.

R E S T R I C T E D

WAR DEPARTMENT
Washington

July 28, 1943.

From: The Secretary of War.
To: Major Philip T. Knies, Medical Corps.
Subject: Interdepartmental Quarantine Commission.

1. You are hereby appointed the Army Representative on the Interdepartmental Quarantine Commission. You will carry out duties in this connection which may be assigned you either through the office of the Administrator of the Federal Security Agency or The Adjutant General.
2. It is understood Dr. G. L. Dunnahoo represents the U. S. Public Health Service and Captain T. B. Magath, the Navy Department, and that the Commission may, in carrying out its assignments, travel either separately or together. It has been agreed by The Surgeon General of the three services and approved by the Secretaries of War and Navy and the Administrator of the Federal Security Agency, each of you is directed to inspect the facilities controlled by each service insofar as they are concerned with matters coming under the terms of reference and authority of the Commission, which are as follows:
 - a. By joint action of the Federal Security Administrator, the Secretary of War, and the Secretary of the Navy, an Interdepartmental Quarantine Commission is established, composed of one medical officer from each of the three departments, appointed by the head of the department, and in connection with the duties of the Commission, authorized to represent the head of the department.
 - b. The Commission is instructed to examine into existing quarantine laws, regulations and enforcement procedures, both at ports of arrival in this country and at foreign ports of departure, including sanitary conditions at ports of departure and of craft enroute.
 - c. The Commission will recommend changes or modifications in existing laws, regulations and methods of enforcement which may be deemed necessary to protect the interests of the United States and of our military and naval personnel in other countries against danger of the introduction of quarantinable and other exotic diseases which may threaten military or civilian health and consequently impede the war effort.

R E S T R I C T E D

6. The Commission is authorized to travel to such places as may be necessary in order to carry out the foregoing duties.

7. The Commission will keep the Federal Security Administration, the Secretary of War, and the Secretary of the Navy informed in regard to the progress of its studies, will submit a final report and recommendations as soon as practicable, and will perform such other duties as from time to time may be assigned to it by competent authority.

/s/ Robert P. Patterson
Acting Secretary of War

R E S T R I C T E D

FEDERAL SECURITY AGENCY

Washington

August 2, 1943

(Through The Surgeon General)

Dear Doctor Dunnahoo:

By joint action of the Federal Security Administrator, the Secretary of War and the Secretary of the Navy, and Interdepartmental Quarantine Commission has been established. The Commission is composed of one medical officer from each of the three departments, appointed by the head thereof. The representative of the Federal Security Administrator will act as chairman. Each representative is authorized to represent the head of the department concerned in connection with the duties of the commission.

You are hereby appointed the representative of the United States Public Health Service and the Federal Security Agency on this Interdepartmental Quarantine Commission. As the representative of this Agency, you will act as chairman and carry out duties in this connection as outlined below. You will also perform such other duties as from time to time may be assigned to you by competent authority.

The Secretary of War has designated Major P. T. Knies to represent the War Department. The Secretary of the Navy has designated Captain T. B. Magath to represent the Navy Department.

In accordance with the agreement reached by The Surgeons General of the Army, Navy, and Public Health Service, approved by the Secretaries of War and the Navy and by the Federal Security Administrator, it is directed that each member of the commission, traveling separately or together, inspect the facilities controlled by each department or agency, insofar as they are concerned with matters coming under the authority of the Commission, which are as follows:

(1) The Commission is instructed to examine into existing quarantine laws, regulations and enforcement procedures, both at ports of arrival in this country and at foreign ports of departure, including sanitary conditions at ports of departure and of craft enroute.

RESTRICTED

(2) The Commission will recommend changes or modifications in existing laws, regulations and methods of enforcement which may be deemed necessary to protect the interests of the United States and of our military and Naval personnel in other countries against danger of the introduction of quarantinable and other exotic diseases which may threaten military or civilian health and consequently impede the war effort.

(3) The Commission is authorized to travel to such places as may be necessary in order to carry out the foregoing duties.

(4) The Commission will establish contact with the War Research Service of the Federal Security Agency and advise with its Director regarding defense measures relating to War Research Service responsibilities assigned it by Presidential directive.

(5) The Commission will keep the Secretary of War, the Secretary of the Navy, and the Federal Security Administrator informed in regard to the progress of its studies and will submit a final report and recommendations as soon as practicable.

Sincerely yours,

(Signed) PAUL V. MC NUTT

Administrator.

Assistant Surgeon General G. L. Durnahoo,
U. S. Public Health Service,
Washington, D. C.

OLD:WIMES:ref

cc. War Department and Navy Department

R E S T R I C T E D

FEDERAL SECURITY AGENCY

Washington

May 25, 1943

Dear Mr. Secretary:

I am enclosing herewith a copy of a letter which I addressed to the Secretary of War and to the Secretary of the Navy, outlining a proposal for a joint commission to study the problems connected with the spread of epidemic and tropical diseases by the rapidly accelerating use of aircraft. Replies have been received from both the Secretary of War and the Secretary of the Navy, each concurring in the principle expressed in the plan of procedure.

We are all in agreement that the Department of Agriculture may be concerned in the matter, and if you concur, I shall appreciate your appointing a member to represent your Department.

Sincerely yours,

(Signed) WATSON B. MILLER

Acting Administrator

The Honorable
The Secretary of Agriculture
Washington, D. C.

R E S T R I C T E D

DEPARTMENT OF AGRICULTURE

Washington

June 8, 1943

Hon. Paul V. McNutt
Administrator, Federal Security Agency
Washington, D. C.

Dear Mr. McNutt:

We have Mr. Watson B. Miller's letter of May 25, 1943, enclosing a copy of your letter of April 23, addressed to the Secretary of War and to the Secretary of the Navy, outlining a proposal for an Interdepartmental Quarantine Commission to study problems connected with the spread of epidemic and tropical diseases by the rapidly accelerating use of aircraft.

The problem as outlined in the communication referred to is seemingly confined to an investigation and study of Public Health quarantine matters and does not include plant quarantine activities participated in by this Department under the authority contained in the Insect Pest Act of 1905 and the Plant Quarantine Act of 1912. If it is intended that these studies shall include possible introduction of insects and plant diseases likely to be injurious to cultivated crops or domestic animals, we would be pleased to have a representative on this Commission. It should be understood, however, if the studies in question are confined to Public Health problems, the specialists of this Department who may be in a position to contribute will stand ready to cooperate, upon request, to the fullest extent.

Sincerely,

(Signed) GROVER B. HILL

Assistant Secretary

R E S T R I C T E D

ITINERARY OF COMMISSION AS A WHOLE

U.S.A.

New York
Miami and area
Washington
West Palm Beach and area

Cuba

Havana
Batista
Cienfuegos
San Antonio
Camaguey
Santiago
Antilla
Guantanamo Bay
Preston

Jamaica

Kingston
Goat Island
Fort Simmons

Haiti

Port au Prince

Dominican Republic

Trujillo City

Senegal

Dakar
Ekmes Field
D'Yoff Field

British Guiana

Atkinson Field (Georgetown)

Surinam

Zandry Field

Puerto Rico

San Juan
Borinquen

St. Thomas

Charlotte Amalie

Martinique

Fort de France

Barbados

Seacliff

Trinidad

Port of Spain
Waller
Edinburg-Xeres
Piarco
Naval Air Station

Brazil

Belem
Fortaleza
Natal
Recife

French Morocco

Casablanca
Port Lyautey
Rabat
Atar
Tindouf

French Guiana

Cayenne Field

R E S T R I C T E D

ADDITIONAL ITINERARY OF DOCTOR DIENHARTOO

Venezuela

LaGuaira
Caracas
Maracay
Maracaibo

Columbia

Beranguilla
Bogata

Cuba

Williamstad
American Air Base

Aruba

American Air Base

Panama

Cristobal
Panama City

Canal Zone

Colon
Balboa

U.S.A.

El Paso
Brownsville

Mexico

Mexico City
Juarez

Brazil

Rio de Janeiro

French Morocco

Marrackech

Ecuador

Guayaquil

Peru

Lima

Chile

Santiago
Valpariso

Argentina

Buenos Aires

Uruguay

Montevideo

Guatemala

Guatemala City

R E S T R I C T E D

<u>U.S.A.</u> Jacksonville, Florida (N.A.S.)	<u>Egypt</u> Cairo Port Said Suez Alexandria	<u>Baluchistan</u> Quetta
<u>Brazil</u> San Luiz	<u>Palestine</u> Jerusalem Tel Aviv Tel Levinsky Haifa Jaffa	<u>Assam</u> Chabua Jin Gew
<u>Surinam</u> Paramaribo		<u>India</u> Karachi New Delhi Calcutta
<u>French Morocco</u> Féz Sale	<u>Lebanon</u> Beyrouth Saïda Tyre	<u>China</u> Kumming Chengkan
<u>Gibraltar</u> Gibraltar	<u>Syria</u> Damas Alepo Tripoli	<u>Arabia</u> Moseilah Island Salala
<u>Algieria</u> Algiers	<u>Iraq</u> Baghdad Basra	<u>Aden</u> Aden
<u>Tunisia</u> Tunis La Goulette Bizerte		<u>Eritrea</u> Asmara
<u>Lybia</u> Tripoli	<u>Turkey</u> Ankara Hydrapasha Istambul	<u>Anglo Egyptian Sudan</u> Khartoum
<u>Malta</u> Violetta	<u>Iran</u> Khooremsahhr Abadan Tehrau Sharjah	<u>Nigeria</u> Kano Lagos
<u>Sicily</u> Catania Palermo	<u>Persian Gulf</u> Bahrein Island	<u>Gola Coast</u> Takoradi Accra
<u>Italy</u> Bari Naples Teranto	<u>Saudi Arabia</u> Dhahran	<u>Liberia</u> Roberts Field Fisherman's Lake Roberts Port

R E S T R I C T E D

ADDITIONAL ITINERARY OF LIEUT. COLONEL P. T. KNIES

Venezuela

LaGuaira
Caracas
Maracay
Maracaibo

Columbia

Baranquilla
Turbo
Bogata

Curacao

Williamstad
American Air Base

Aruba

American Air Base

Panama

Cristobal
Panama City
David

Canal Zone

Colon
Balboa

Costa Rica

San Jose

Nicaragua

Managua
Corinto

Honduras

Tegucigalpa

El Salvador

San Salvador
La Libertad

Guatemala

Guatemala City
San Jose
Puerto Barrios

Mexico

Mexico City
Vera Cruz
Merida
Juarez
Matamores

U.S.A.

New Orleans
Houston
Galveston
Brownsville
Matamores (Mex).
San Antonio
Dallas
El Paso
Juarez (Mex).
San Francisco
Hamilton Field
Ft. MacDonald
Ft. Stoneman
Treasure Island
Boston
Presque Isle, Me.
Washington
Wright Field, Dayton, Ohio
LaGuardia Airfield, NYC.
NY, APOE

Territory of Hawaii

Honolulu
Pearl City
Pearl Harbour
Hickham Field
Kaneohe Air Station

Canton Island

Australia

Brisbane
Townsville
Sidney
Canberra

New Guinea

Port Moresby
Milne Bay
Oro Bay
Dobadurra

New Zealand

Auckland
Wellington

New Caledonia

Tontouta Air Base
Noumea
Plain de Gaiac

Fiji

Nanda Air Base

Canada

Montreal
Ottawa

Brazil

Rio de Janeiro
Manaus

French Morocco

Marrackech

Liberia

Roberts Field

Gold Coast

Accra

Ascension Island

Army Air Base

R E S T R I C T E D

DESCRIPCIÓN INDIVIDUAL DE VIAJE INTERNACIONAL Y REGISTRO DE IMMUNIZACIÓN

Nombre _____	Dirección _____		
Residencia, y lugares visitados durante las dos semanas antes de este viaje	Fecha partido	Residencia, y lugares visitados durante las dos semanas antes de este viaje	Fecha partido

Si es necesario, continúe en el reverso

REGISTRO DE IMMUNIZACIÓN

Anotaciones hechas por oficial de Salud o otro oficial representativo de línea de transportes. Esto certifica existencia de certificados originales por médicos autorizados.				
Enfermedad	Fecha del último certificado válido	Médico	Copia certificada por*	Línea de transportes

Varioloides
(Reacción primaria o immune)

Tifo
(Epidémico; llevado por piojos, no fiebre tifoidea)

Fiebre
amtrilla (Hecho por)
Colera

Plaga

*Sellos oficiales de validez se ponen en el reverso, mostrando las fechas.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

R E S T R I C T E D

Item 13

INDIVIDUAL INTERNATIONAL TRAVEL LOG AND IMMUNIZATION RECORD

Name _____		Address _____	
Residence, and places visited, beginning two weeks before travel.	Date departed	Residence, and places visited, beginning two weeks before travel.	Date departed

If necessary, continue on reverse side

VACCINATION RECORD

<p>Entries to be made by public health official, or official representative of the carrier. This certifies existence of original certificates from authorized physicians.</p>				
Disease	Date of last valid certificate	Physician	Certificate copied by*	Carrier
Smallpox (Primary or immune reaction)				
Typhus (Epidemic; louse-borne; not typhoid fever)				
Yellow fever	Manufactured by			
Cholera				
Plague				

*Official validating stamps to be placed on reverse side and dated by the certifying agency.

R E S T R I C T E D

United States Public Health Service

To the Physician,

The person named below, an international traveler, has been instructed to consult a physician at intervals until and on a certain date for medical surveillance. This is required by regulations of the U.S. Public Health Service because of the recent possible exposure of this traveler to

PLAGUE, EPIDEMIC TYPHUS SMALLPOX CHOLERA YELLOW FEVER
(Quarantine Officer to encircle proper word)

It is requested that upon proper consultation you complete the attached card, which will terminate the surveillance.

KINDLY REPORT BY TELEGRAM COLLECT TO THE SURGEON GENERAL, U.S. PUBLIC HEALTH SERVICE, WASHINGTON, D.C. IF THE PERSON DEVELOPS, OR IF YOU SUSPECT, THE DISEASE ENCIRCLED

Thomas Parran, Surgeon General.

UNITED STATES OF AMERICA
Treasury Department
U.S. Customs
MEDICAL SURVEILLANCE BOND

No.-----

Received of.....194..
Address.....
the sum of \$100.00, in accordance with U.S. Public Health Service Reg. No. (x), as a surety that the above named person will report by telephone or in person every second day, until, and in person on194.., to an authorized physician for examination because of recent possible exposure to a quarantinable disease.

When this receipt is returned to this office properly signed by the authorized physician, the sum of \$100.00 will be refunded.

.....
(U.S. Customs Agent)

I, a physician licensed to practice medicine in the State of, certify that the above named recent traveler completed the period of medical surveillance on the specified terminal date in accordance with the above noted regulations, and (no) evidence of quarantinable disease was found.

.....M.D.
.....
(Title if any, or License No.)

R E S T R I C T E D

UNITED STATES PUBLIC HEALTH SERVICE
Quarantine Station

To the Traveler,

The circumstances of your travel requires that you be kept under medical surveillance for a short time for the protection of yourself and those with whom you come in contact, because of your recent possible exposure to a quarantinable disease. This will require you to report by telephone or in person every second day, and in person on the terminal date, to an authorized physician (Federal, state, country, or city public health physician, or licensed private or clinic physician). On the terminal date he will sign the Medical Surveillance Bond, which you will then mail to the Customs official who issued the bond, and who will return your deposit to the address thereon. IN THE EVENT OF ILLNESS REPORT TO YOUR PHYSICIAN AT ONCE.

Thomas Parran, Surgeon General.

(Frank)

(-----)

Name of Customs Official
Office of U.S. Customs

(-----)

Port

RESTRICTED

UNITED STATES OF AMERICA

BILL OF HEALTH

Name or designation of vessel.....Nationality.....

Port departed.....Date.....19.....

Number of persons embarked.....

Quarantinable diseases in port or vicinity during past 60 days:

CHOLERA PLAGUE,BUBONIC PLAGUE,PNEUMONIC PLAGUE,RODENT

SMALLPOX,EPIDEMIC TYPHUS,EPIDEMIC YELLOW FEVER (encircle proper words)

What other communicable diseases were epidemic?.....

If plague in man or rodents is present, answer the following:

a. Was the vessel alongside?..... b. Was the vessel anchored offshore?...

c. Was cargo taken on?.....

Is the sanitation of the vessel satisfactory?.....If not, specify.....

Was the drinking water supplied the vessel potable?.....

.....
Consular or authorized medical officer.

R E S T R I C T E D

QUARANTINE DECLARATION--AIRCRAFT

Airport of Entry.....Date

Aircraft number Ownership.....No. of Crew

Aerodromes* From Which The Aircraft Departed

Aerodrome	No. passengers boarding	Date	Aerodrome	No. passengers boarding	Date

No. of passengers disembarking.....No. ill, disembarking.....

Was there any illness, other than airsickness, during flight ?.....

Were living animals, birds, caged insects, bacterial cultures aboard during
this flight ?WHERE AND WHEN WAS PLANE LAST DISINSECTIZED ?

.....
(Aircraft Commander)

Hour of arrival.....Was plane disinsectized after landing ?

Disposition of disembarkees: Free pratique...Surveillance...Quarantine...
(Details on reverse side)

Immigration examinations: Passed.....Examined.....Certified: A.....B.....

Name	Nationality	Class	Defect

.....
(Quarantine Officer)

*To include all aerodromes encountered in the flight, beginning at its
farthest point and progressing toward the port of entry, irrespective of
overnight stops.

R E E S T R I C T E D

INTERNATIONAL CODE FOR EPIDEMIOLOGICAL REPORTS

<u>DISEASES</u> (Quarantinable)	Symbol	<u>DISEASES</u> (Communicable)	Symbol
Plague -		Meningitis	I
Bubonic	A	Encephalitis	J
Pulmonary	B	Poliomyelitis	K
Rodent	C	Influenza	L
Cholera	D	Scarlet Fever	M
Smallpox	E	Diphtheria	N
Typhus -		Measles	O
Epidemic louse-borne	F	Chickenpox	P
Other	G	Leprosy	Q
Yellow Fever	H	None	Z

- Order of Message:
1. Place--in standard code.
 2. Cases--as numeral before code letter for disease.
 3. Disease--in code letter.
 4. Deaths--in numeral after code letter for disease.

Clearance from disease to be indicated by code-letter without numerals.

Non-quarantinable diseases to be reported only if epidemic.

Example

The following message concerning diseases present at Paramaribo, Surinam, (call letters "P2Y") is shown below in the condensed form permitted by the above code.

Data: "There are 16 cases of bubonic plague in man, with six deaths in past week; also 55 cases of smallpox, with 10 deaths; and 54 cases of poliomyelitis with no deaths."

Code Message: "P2YK16A6X55E10X54K."

R E S T R I C T E D

INTERNATIONAL CODE FOR EPIDEMIOLOGICAL REPORTS BY AIRWAYS COMMUNICATIONS

<u>DISEASES</u>	1 Case	Few Cases	Many Cases
-----------------	--------	-----------	------------

(Quarantinable)

Plague -			
Bubonic	A	B	C
Pulmonary	D	E	F
Rodent	G		
Cholera	H	I	J
Smallpox			K
Typhus -			
Epidemic, louseborne			L
Endemic, murine			M
Yellow fever	N	O	P

DISEASES(Communicable)

Meningitis			Q
Encephalitis			R
Poliomyelitis			S
Influenza			T
Scarlet Fever			U
Diphtheria			V
Measles			W
Chickenpox			X

The above code-letters may be of designated significance in "fixed-position" messages, such as weather reports, or may be preceded by "Q" in open messages.

R E S T R I C T E D

REPORT ON QUARANTINE AND SANITARY CONDITION OF VESSEL

TO: Medical Officer in Charge, U.S. Quarantine Station.....

SUBJECT: Report of entrance of a (1) U.S. Naval vessel, or (2) merchant vessel.

1. A vessel,.....,arrived this port on
 (Name or number) (Date Hour)

2. The crew and passengers were examined* and none was found to be suffering or suspected of suffering from a quarantinable disease except as follows:

3. The vessel is (not) considered infected and was (not) granted free pratique. (No compartments were infested with lice) (lice infested compartments were (not) deloused).

4. There were (no) psittacine birds aboard. (Those present were destroyed)
(Those present will not be landed).

5. The vessel (not) free of rats. (Request is made for inspection by the U.S. Public Health Service).

6. Duplicate bills of health (are forwarded herewith) (were not available).

Signed.

U.S. Naval Quarantine Officer or
ship's doctor.

"The examination may be based on personal observation or on the statements made by the captain or other responsible officer of the ship relative to the health of the crew and passengers.

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DRAFT

61-3
5 Pages
Page 1AAF REGULATION
No. 61-3WAR DEPARTMENT
HEADQUARTERS, ARMY AIR FORCES
Washington, _____

FLYING, OUTSIDE THE UNITED STATES

QUARANTINE

Paragraph.

General, Responsibility-----	1-2
Section I, Quarantine of Personnel-----	3-5
Section II, Quarantine of plants, animals, and their products-----	6-11
Section III, Disinsectization of aircraft-----	12-15

General: Responsibility:

1. Compliance with the provisions of this regulation, in accordance with AR 40-210, Section I, Par. 1, b, (13), is a responsibility of each command concerned. This responsibility includes both the training of personnel and the provision of supplies required under this regulation, as well as the establishment of liaison with pertinent local quarantine authorities. The responsibility will be discharged with the technical advice of the surgeon. Surgeons will conduct inspections as necessary, including the search of baggage, to insure that the provisions of this regulation are being carried out. A copy of this Regulation will be carried in all aircraft to which its provisions apply.
2. In exceptional circumstances the provisions of this regulation may be amended in a manner acceptable to local military and public health service officials after written approval by the Commanding General, Army Air Forces.

Section I. Quarantine of personnel:

3. In order to prevent the introduction of the quarantinable diseases of man by air traffic, provisions of this Section will apply to all personnel carried by aircraft under the jurisdiction of the Army. The quarantinable diseases concerned are, by international convention, cholera, plague, smallpox, typhus (louse-borne), and yellow fever; and, in addition, leprosy, with reference to the United States, its territories and possessions.
4. Travel in aircraft under the jurisdiction of the Army will be contingent on the satisfaction of immunization requirements of the War or Navy Department, and on freedom from venereal disease. Civilians not subject to field service with the armed forces of the United States, military personnel of foreign countries, and persons bearing valid certificates of urgency approved by the Secretary of War, Navy or State will not be required to be so immunized. Such individuals should be advised of the advantages of

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immunization, and may be immunized upon their request. Persons will not be accepted for transportation if, in the opinion of the Surgeon of the carrier echelon, their transportation would imperil the health of other personnel, or if it is contrary to the requirements placed upon the carrier by countries of entry or of destination. No person will be transported by air who is ill with pneumonic plague, or whose last possible contact with pneumonic plague has been within seven (7) days.

5. All personnel will be subject to the quarantine regulations of the countries entered; these requirements will be supplemented if considered inadequate for the protection of the interest of the United States Army. The quarantine requirements of the United States Public Health Service (See App. III) will be satisfied by freedom from varmin and quarantinable disease, and compliance with the immunization requirements of the War or Navy Departments. The pilot of the aircraft will be notified in writing that all persons aboard, unless otherwise indicated, have met these requirements. It will be the responsibility of the pilot to notify the commanding officers of airfields entered, who will notify the quarantine authorities of the country concerned in accordance with the requirements of that country. The movements of persons will be restricted in accordance with the quarantine regulations of the country concerned.

Section II. Quarantine of plants, animals, and their products:

6. In order to avoid the transmission of animal or plant diseases and pests, and in order to observe strictly all pertinent civil and military regulations, no animal or plant product likely to convey disease or subject to quarantine or other restrictive regulations, and no living plant or animal (mammal, reptile, bird, fish, etc.), will be carried across national boundaries by an airplane under the jurisdiction of the Army except upon specific permit. This permit will be secured in advance from the proper civil authority of the country into which importation is intended with the approval of the appropriate theater commander or the Commanding General, Army Air Forces. Pertinent regulations of the United States, its territories and possessions are noted in Appendix II.

7. Such permits will be requested only for plants, animals, or plant or animal products intended for scientific, educational, or military purposes. Requests will show the species and number, type of container, source, destination, purpose for which intended, and the nature of any pathological state.

8. It will be the responsibility of the shipper properly to pack, crate, tie, administer sedative drugs when necessary, and arrange for care of all animals during flight. Written instructions for care, including feeding, watering, exercise, etc., will be attached. Conspicuous labels, containing instructions for full protection of handlers, will be attached to all cages containing animals infected with pathogenic organisms, or the animals will be accompanied by a person responsible for their care; proper disposition will be specified for bedding, dejects, and other material liable to be contaminated.

9. Even though observatories authorized, no animal will be transported by aircraft unless certified by a qualified veterinarian to be free from disease, except as provided in para. 7 and 8.

10. Pathogenic cultures or tissues, or animals infected with pathogenic organisms may be carried by aircraft only in accord with the provisions of para. 6, 7, and 8.

11. Raw meat and dressed poultry, or kitchen waste containing scraps thereof, will not be landed by aircraft except in accordance with pertinent military and civil regulations. Particular attention is directed to restrictions pertaining to the use or sale of such material for animal feeding.

Section III. Disinsectization of aircraft:

12. In view of the danger of introduction of insects which are economic hazards or vectors of disease, aircraft under Army jurisdiction will be disinsectized as follows:

- a. Aircraft entering the United States, its territories or possessions will, when required by civil regulations, be disinsectized in accordance with para. 13 and 14. The United States Public Health Service has agreed that these provisions fulfill its requirements.
- b. Aircraft entering a foreign area will comply with the requirements of the country concerned for disinsectization. These requirements, if considered inadequate to protect the interest of the United States Army, will be supplemented by the measures provided by paragraph 13.

13. Disinsectization, except as noted in para. 12b and 14, will be carried out immediately before the last take-off prior to the entry concerned, using Aerosol Insecticide or a substitute as described in Appendix I. Disinsectization will be accomplished:

- a. by the pilot of the aircraft or under his direction by personnel of the flight-crew;
- b. after full loading of fuel, baggage, cargo, passengers and crew, and during or prior to the warm-up of the engines;
- c. with all doors, windows, hatches, and other openings closed during spraying, and until take-off, which shall not be sooner than two (2) minutes after spraying with aerosol bomb, or five minutes after spraying with hand sprayer;
- d. in all cabin, cockpit and baggage compartments, and other places deemed necessary; if any are inaccessible from within the airplane, they will be sprayed when loaded;

RESTRICTED

c. and will be certified in the Clearance (AAF Form No. 23) of the aircraft, as well as signaled to the control tower.

Aircraft will not be cleared for take-off until the disinsectization has been indicated to the control tower. Operations officers will maintain appropriate records.

14. Disinsectization will not be required of aircraft arriving in the United States, its territories or possessions from:

Continental U. S.	Alaska	Canada and adjacent areas
Iceland	Greenland	British Isles
Bahamas	Bermuda	Mexico, Federal District
Curacao and Aruba	St. John's, V.I.	Galapagos Islands.

If flight has originated in other areas or stops have been made at other places en route between sunset and sunrise or under conditions favoring entrance of insects into the planes, disinsectization will be performed. All planes will be disinsectized immediately prior to the last take-off before arrival in the Territory of Hawaii.

15. Civilian pilots of aircraft under Army jurisdiction, not complying with these provisions, will be suspended from further flight pending action by the Commanding General, Army Air Forces.

APPENDIX I

A. Use of Aerosol Insecticide: (such as QM issue, stock No. 51-1-159)

1. To prepare dispenser for operation, invert, bend capillary tube backwards and forwards until broken off at base, and immediately screw on cap.
2. To operate, hold dispenser nozzle-down, unscrew cap, and turn upright.
3. Spray all compartments and spaces, dividing proportionately the overall time indicated in the table below.
4. Do not hold closer than 1 foot to any stainable article.
5. To stop spray, invert dispenser and screw on cap.

B. Alternate Insecticide:

In lieu of Aerosol Insecticide, disinsectization may be accomplished by fine vaporization from a hand - or other sprayer of a 1 to 5 dilution in kerosene, etc., of standardized pyrethrum extract (marketed as pyrethrum concentrate, 20 to 1 strength; pyrethrum extract standardized; pyrethrum extract No. 20; pyrethrum concentrate No. 20; or No. 20 extract standardized). Approved insecticide and handsprayer may be obtained from Quartermaster, and should be used in accordance with the table below.

RESTRICTED

C.

Type of Aircraft	Aerosol (Hold 2 min.)	Fumigant (Hold 5 min.)
Single-Seat Planes	5 sec.	3 cc.
B-18, B-29, or equivalents	20 sec.	10 cc.
B-25, B-26, C-46, C-47, B-17, etc.	30 sec.	15 cc.
C-54, C-87, etc.	90 sec.	40 cc.

A watch with second hand will be used by all sprayers.

APPENDIX II

The importation into the United States, its territories or possessions of psittacine birds (parrots, parakeets, lovebirds, etc.), of certain products likely to be contaminated with spores of anthrax, and of living disease organisms and vectors is subject to regulation by the United States Public Health Service (Executive Order No. 5264, 24 Jan. 1930 for psittacine birds; 9 Code of Fed. Regs., 95-10, 95-11 for anthrax; Amendment No. 17, Quarantine Regs. of U.S. for living disease organisms and vectors). Importation of other wild animals is regulated by the Fish and Wildlife Service of the Department of the Interior, (Lacey Act, 25 May, 1900, 31 Stat. 187-18 U.S.C. 395, amended, for wildlife). Importation of domestic animals (swine, equine, ruminant) is regulated by the Bureau of Animal Industry of the Department of Agriculture (B.A.I. Order 356 U.S.D.A. 1 Aug., 1935 and B.A.I. Order 368 U.S.D.A. 16 Jan., 1939 amended, for domestic livestock; B.A.I. Order 373 U.S.D.A. 26 Oct., 1940 for animal products). The importation of certain plants and plant products is regulated by the Bureau of Entomology and Plant Quarantine of the Department of Agriculture (Service of Regulatory Amendments, U.S.D.A., B.E.P.Q., published annually; Order No. 1, Board of Commissioners of Agriculture and Forestry, T.H., D.A.I., 27 May, 1940). Animals, plants, and their products arriving contrary to these regulations are subject to seizure and destruction or to re-export at the expense of the owner. Pets liable to rabies are subject to quarantine for 120 days in Hawaii at owner's expense (Regs. Div. of Ent., Board of Commissioners of Agriculture and Forestry, T.H., 1 Dec., 1941).

Ref.: W.D.Memo W850-44, 5 April, 1944; W.D.Circ. No. 17, 14 Jan., 1944; W.D.Gen. Order No. 32, 20 April, 1944, which states "no plant, plant product, animal or animal product shall be carried by an Army airplane, vessel, or by Army personnel into the United States, Hawaii, Puerto Rico, or Alaska unless a permit is secured..."

APPENDIX III

Code of Federal Regulations, Title 42, Public Health, Sections 11.501-11.516, and U.S. Public Health Service, For. Quar. Div. Cir. 71, Quarantine Treatment of Military Aircraft. The provisions of the latter exempt from quarantine all persons flying non-stop to and from the following areas, in the absence of quarantinable disease, including epidemics of smallpox and typhus: United States, Puerto Rico, Canal Zone, Virgin Islands, Alaska, Canada, Cuba and Bahama Islands, and all other islands of the Caribbean area where U. S. airbases may be established, Newfoundland, St. Pierre, Miquelon, and British Isles. Personnel may not be exempted if travel has originated elsewhere within 14 days.

FINAL REPORT

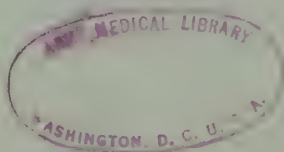
INTERDEPARTMENTAL QUARANTINE COMMISSION

10 June 1944

APR 23 1956

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Washington, D. C.

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